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THE

JOURNAL OF HORTICULTURE, COTTAGE GARDENER, AND HOME FARMER.

A CHRONICLE OF THE HOMESTEAD, POULTRY-YARD, APIARY, & DOVECOTE.

CONDUCTED BY

GEORGE W. JOHNSON, F.R.H.S., AND ROBERT HOGG, LL.D.

THE FRUIT and KITCHEN GARDENS, by Mr. J. MUIR; and Mr. W. TAYLOR.
THE FLOWER GARDEN, by Mr. E. LUCKHURST; and Mr. J. MOORMAN.
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TO OUR READERS.

A GENTLEMAN recently staying in the Isle of Wight in the course of his rambles arrived at the village of Arreton without being aware that there lived and died "the Dairyman's Daughter," rendered so charmingly celebrated by the Rev. Legh Richmond's biography of her. The gentleman was allowed to visit the cottage where she resided, but there are no memorials of her beyond the gravestone in the churchyard; yet it was gratifying to see the residence and the trees which she knew from her childhood until her death.

Telling of his visit to a friend the latter replied that he had also visited the cottage, and that that visit caused him to become a permanent reader of the "Cottage Gardener," for another visitor had our Journal in his hand and drew his attention to a relative paragraph. He went on to observe, "That Journal has made me a *gardener*, I was a mere delver and raker before." But it did more than that, for he was the vicar of a parish, and it induced him to establish a cottagers' garden society, and since a poultry club has been added to it.

The Editors, therefore, rejoice in this further testimony that they have been useful, and it stimulates them to ask of their readers for continued help, and prompts them to renewed efforts of their own to deserve it.

INDEX.

ABUTILON IGNEUM, 80
Acacia armata at Kew, 441; A. decurrens, 117; A. platyptera, usefulness of, 77
Acanthaceous plants for winter, 459
Adelaide Botanic Garden, 379
Adiantum Bausei at Anerley, 276; A. Capillus-Veneris, 53; A. farleyense, 173, 202, 216; fructification of A. farleyense, 96; origin of A. farleyense, 24, 42, 80; A. tenerum, 105; A. Williamsi, 402
Adiantums, raising from spores, 409
Adonis vernalis, 118
Afghanistan, cultivation of land in, 135
Agapetes buxifolia, 479
Agricultural International Exhibition prizes, 19; implements for, 56
Ainsliea Walkeri at Kew, 76
Albuca Wakefieldii, 407
Alexandra Palace Bird Show, 91
Allamandas, pruning of, 15
Alligator Pear, 213
Allium Erdelii, 407
Alyssums, notes on, 96
Amaryllis culture, 367; culture of A. Belladonna, 157; raising from seed, 241
American Cowslip, 355
Ammonia, applying phosphate of, 261
Ammoniacal liquor, use of, 143
Anemones, 138, 216; A. narcissiflora, 138; A. stellata, 202; A. sylvestris, 138; A. thalictroides, 179
Anemonopsis macrophylla, 328
Animals, number imported last year, 299; reasoning of, 205
Ants—banishing, 331; destroying, 466; eating Cabbage plants, 448; fruit blossom, 142; and Roses, 447; in greenhouse, 220; in orchard house, 349; on lawns, 409
Annuals, cultivation of, 278
Aphelandras, raising from seed, 100
Aponogeton distachyon, 45; A. angustifolium, 64
Apples for exposed situation, 53; history of, 175; inarching, 220; Paradise stock for, 415; raising stocks, 202; relative fruitfulness of stocks, 356; stocks for, 433. Duchess of Oldenburgh, 195; Potts' Seedling, 212; Prince Albert, 322; Lane's Prince Albert, Smart's Prince Albert, 323
Apple trees, boring and scaring, 403
Apricots, protecting blossoms of, 162, 182
Aquatic plants, hardy, 417
Aquilegia chrysantha, 454; A. glandulosa Grigori, 441
Aralia Sieboldi, manure for, 260
Arisæma nepenthoides, 286
Arnebia echioides, 360
Artichokes, Globe, hardy, 394; planting of Globe, 143; Morocco, 182; slow-growing, 220
Arum crinitum, 373
Asiatic Globe flower, 355
Asparagus, cutting of, 366; planting beds, 183; salting beds, 447; Connover's Colossal, 53
Auricula Show at Manchester, 342
Auricula stage, 419
Auriculas—aphis on roots of, 133; as decorative plants, 311; characteristics of, 260; culture, 178; dividing plants of border, 447; frame for, 428; grubs at roots, 230; National Show of, 305; notes on, 214; potting, 427; protection, 245
Avocado, 213
Azaleas—culture of, 348; forcing of, 192; Indian, 252; management of, 104; new, 291

BAILY, MR. J., DEATH OF, 333
Bamboo shading, 292
Bantams, 370; Nankin, 202
Bath and West of England Society's Show, horticultural tent at, 443
Beadon, Canon, death of, 441
Beans, culture of in field, 183, 202; Dwarf Kidney, 366; Scarlet Runners, 36, 295; sowing, 329
Bedding-out, 393
Bedding plants, 328; preparing for planting, 365; propagation of, 86; spring, 367
Beech leaves, value of, 182
Beef-woods at Holloway, 100
Bees—in Borneo, 299; breeding in winter, 145; diseased, 168; do they eat pollen? 110; ejecting brood, 490; feeding, 318; feeding in early spring, 38; and in Germany, 263; and Mr. Raitt's recipe for, 186; food for in Algeria, 243; gossip about, 205; inactive, 264; in Strawberry house, 180; nitrogenous diet for, 187; pasture, 148; queen, 281; introducing of, 334; loss of, 282; raising of, 38, 290; and selecting cells, 353; spring treatment, 223; swarms double, 74; swarm early, 391; transferring, 358, 471; wandering, 336; worker, fertile, 335, 354, 371, 391. *Hives*—American chaff, 371; Arab, 244; bar-frame, 336, 353, 391; cottage, 92; dysentery in, 92; encouraging early breeding in, 213; management, 127; a new, 431, 451; size of Mr. Raitt's, 188; Stewarton, 148, 188, 354, 470; two doors in, 188; wintering in Peach house, 224. *Honey*—American, 244, 281; Apple cake, recipe for, 223; cakes, 168; in California, 109; from supered swarms, 470; sponge cake, recipe for, 223; spurious, 281; *Supers*—Bar-frame, 92; and comb foundation, 335; Mr. Raitt's sectional, 143; sectional, 234. *Miscellaneous*—Apiarian appliances, 167, 187; apiarian prospects, 414; artificial foundations, 38, 282; comb foundations, 57, 91, 186, 335, 409; consumption of food, 128; effect of winter on life, 147; experiences, 128; experiences of a beginner, 147; extractor, 167; feeder, 187; foul brood, 470, 489; glucose, what is? 371; impressed wax sheets, 452, 489; management, American, 392; management, modern, 57, 91, 127, 145, 167, 187, 223, 281, 290, 334 413; management, the natural and the artificial, 109, 336; Mr. Cheshire's lecture, 317; Mr. Raitt and his bannock, 263; pea flour for pollen, 224; queen cage, 187; season, unfavourable, 414, 451; sections, working, 413; smoker, 167; stocks, increase of, 282; store for honey and apiarian appliances, 187; tact and perseverance, 19; tents, 490; transferring combs 206; veil, Dr. Pyne's, 264
Beet, sowing, 329
Bee weather in Algeria, 343, 482
Begonias for bedding, 337; B. prismatocarpa, 307; culture of Tuberous, 71; Tuberous in Ireland, 376
Billbergia nutans, 381; at Kew, 76
Birds, 271, 288; and Skimmia japonica, 287; arrival of migratory, 317, 333; destroying Currant buds, 240; fruit, 247, 290; fruit buds, 122; Gooseberries, 227; and Gooseberry buds, 210, 304; destruction of, 320, 325, 479; in suburban gardens, 159; our "dear," 138; pest, 324, 341; preservation of, 326; preserving buds from, 27; and fruit from, 245, 349; protecting seeds from, 475, 418; *cerus* hardy fruit, 41, 116
Birdsall House, 326
Birmingham Columbarian Society's Show, 37
Blinds, preserving canvas, 278
Boilers for heating, 152; heating power, 388; small v. large, 152, 177, 237; which to choose, 303; which shall we use? 274, 303
Blood mixture, application of, 409
Blossom, protecting, 200
Bog-bed soil, 485
Bone dust for plants, 142
Bones, dissolving, 142; granulated for manure, 182, 220
Border flowers, 51
Border plants, raising from seed, 400
Borecole, variegated, 117
Botanic (Royal) Society's Shows, 230, 308, 377, 457
Bougainvillea glabra, potting, 34
Box edgings, relaying, 183
Brahmas, origin of, 108
Bréhaut, Mrs., death of, 338
Briar cuttings, inserting, 16; management of, 44
Brighton Poultry Show, 412
British Bee-keepers' Association, 146, 223, 317, 333, 469; finances of, 56
British plants, choice species of, 463
Broccoli and Cauliflowers for succession, 88; Gilbert's new Cabbage, 12, 46, 63, 84; hardy, 216, 247, 303; select, 387; varieties for succession, 143
Brussels Sprouts culture, 313
Budgerigars, management of, 296
Buds, protecting from birds, 135
"Bulbs and Bulb Culture," review of, 157
Bulbs, export of from Holland, 290; planting, 16; and potting, 105
Bullfinches, 321, 326, 343, 365, 406
Burbidgia nitida, 275
Butomus umbellatus, 463

CABBAGES—autumn-planted, 394; cause and prevention of clubbing, 162; culture of in fields, 467; destroying insects on plants, 437; protecting plants, 234
Caladiums, treatment of, 106
Calanthes, culture of, 240, 395
Calceolarias, Mr. Ford's, 424
Calliphruria Hartwegiana at Kew, 76
Caltha palustris, fl.-pl., 356
Calves eruptions on, 92; rearing for veal, 448
Camellias—buds decayed, 88; casting buds, 124; at Chelsea, 276; culture, 319, 348; cutting down and potting, 260; flowers not expanding, 162; insects on, 331; leaves scorching, 308; notes on, 113; at Ravensworth Castle, 311; repotting, 17, 88; select varieties, 162; time for potting, 230; transplanting, 473
Campion, Double White, 454
Canaries and Cayenne pepper, 244; treatment of, 125, 204, 280, 352, 412
Cape Gooseberry, culture of, 182
Carclew, notes on gardens at, 98
Carladovica ensiformis, 347
Carnations, 171, 267; culture of, 215, 404; dressing, 10, 28, 62, 84; expert dressers of, 27; in beds, 191; list of, 190; management of, 465; Miss Jolliffe, 287; raising from seed, 162; Souvenir de Malmaison, 361; Tree, raising from seed, 162
Carpet bed at Hampton Court, 97
Carpet bedding, 178, 228, 254, 330, 340
Carrots, crop failing, 105; producing supply of, 437
Cassia alata, 407; C. cotymbosa culture, 278
Casuarinas at Holloway, 100
Cattle, feeding of, 127; Kerry, 487; skill in breeding, 488
Cattleya citrina, 313
Cauliflowers and Broccoli for succession, 88; liquid manure for, 406; protecting plants, 234; raising plants of, 162; select, 387
Ceanothus dentatus, 443
Celery, culture of, 434
Cement, elastic, for trees, 384
Centaureas, propagating, 124
Century of Roses in France, 435
Charcoal, chemical effects of, 261
Chenopodium Bonus-Henricus, 250
Cherries—Belle Agathe, 441; destroying insects on, 104; Ebenter, 195; forcing, 181; late, in Ireland, 237; Morello as bushes, 16; treatment of under glass, 312
Cherry house routine, 238
Chertsey Horticultural Show, 483
Cheshire's, Mr., lecture on bees, 317
Chickens cramped, 430; feet paralysed, 58; hatching, 185
Chinese plants, 472
ChionodoxaLucilliæ, spring-flowering, 232
Chiswick, fruit prospects at, 358
Chrysanthemums—challenge cup for, 117; controversy, 30, 120; definitions of blooms, 61; Faust and Fingal, 60; grafting, 163; judging, 61, 193; Liverpool growers' conditions, 99; notes on propagating, 33, 130; planting out, 163; proposed national show of, 100, 117, 135, 180, 192; schedule of National Show, 175; proposed tournament, 4, 43, 81
Churchyard, improvement of St. Paul's, 80
Cineraria culture, 339; seedling culture, 284
Clematises, hardy, 35; pruning, 35, 142; C. Fortunei, 221
Clerodendrons, pruning of, 16; C. aromaticum, 195; C. Balfourianum, 248
Climbers, evergreen, for porch, 200; for greenhouse, 465; pruning and nailing, 60
Cloverley Hall, 10
Clover, sowing, 332
Coal ashes on lawn, 220
Cochins *cerus* Langshans, 165
Cochliostema Jacobianum, 325
Cockroaches, destroying, 296
Cockscombs, drying, 253; for herbarium, 213
Cœlogyne, variegated, 105
Coffee, Liberian, duty on, 100
Colchicum luteum at Kew, 76
Cold, plants enduring, 175
Coleonema rubra, 252
Coltsfoot in pasture, 205
"Columbarium," Moore's, review of, 204
Columbine, Golden-flowered, 454
Comfrey, 450
Conifers at Harborne House, 9
Conservatory, painting, 220; plants for back wall of, 428; plants for cool, 183
Copt Hall, plant culture at, 364
Cordylines injured by frost, 142
Coreopsis nudata, 381
Cornus mascula variegata, 232
Cornwall, notes of nurseries and gardens in, 77
Corydalis nobilis, 355
Cottagers' Horticultural Society, 212, 255, 275, 291
Cotyledon ramosissima, 346
Covent Garden Market, 58, 74, 92, 110, 128, 148, 168, 188, 206, 224, 244, 264, 282, 300, 318, 336, 354, 372, 392, 414, 432, 452, 470, 490
Coverts, planting for game and ornament, 142
Cow-keeping, amateur, 317, 336
Cows, allowance of food for, 244; for milking, 148; prolific, 317
Cowslip, American, 355
Crassula lactea, 62
Cream cheese, making, 206, 223
Creosote—effects of on plants, 156; for preserving wood, 102, 134, 142
Crocus vitellinus, 346
Cropping kitchen garden, 330
Crotons, propagating in water, 65

Cucumbers, arranging house for, 35; cankering, 260; culture, 348, 386; Carter's Model, 394; disease of fruits, 129; forcing, 181; forming heating chamber in house, 183; heating house, 105, 163; making house, 331; management, 108, 141, 259, 312, 365, 437; raising plants of, 70; roots diseased, 35; spring, 302; winter treatment of, 15
Cumberland weather, 213
Cuphea lanceolata, 328
Currants—buds and birds, 240; renovating bushes of Black, 105; summer pruning, 266, 331
Cut flowers, moisture for, 193
Cryptomeria elegans, 325
Crystal Palace, appointment of Mr. Head; 441; Bird Show 166, 186; Flower Show, 409
Cycas revoluta, culture of, 202
Cyclamens after flowering, 260; culture of, 198; hardy species of, 447; planting out, 191; at Reading, 32; sweet-scented, 210
Cydonia sinensis, 361
Cypress, Pryal's Golden, 216
Cypripedium Lawrencianum, 441; C. Sedeni, 16; C. spectabile, 466

DAHLIA PROPAGATION, 230
Dairies, regulation of, 264; American products, 127
Dais cotinifolia, 424
Dalechampia Roezliana rosea, 213
Dale, Mr., death of, 5
Dandelions, destroying, 466
Dangstein, a last visit to, 455
Datura Stramonium, 124
Day Lily, yellow, 453
Decorations for rooms, 94
Delphinium formosum, 453
Dendrobium Cambridgeanum, 314; culture of D. nobile, 71
Deutzias after flowering, 348; D. crenata flore-pleno, 117
Dictamnus Fraxinella, 453
Dicytra eximia, 356
Difficulties overcome, 75, 93
Digging and trenching, cost of, 278; notes on, 195; time for, 179
Dinner-table decoration, 59
Dionæa muscipula culture, 428
Dioscorea vittata, 294
Diplacus grandiflora culture, 485
Dipteracanthus affinis, 460; D. caulescens, 460; D. Herbstii, 459; D. spectabilis, 460
Disbudding, 329; rationale of, 454
Dodecatheon Meadia, 355
Dorking chickens, 430; colour and selection of chickens, 449; for exhibition, 20; modern, 55; Silver-Grey, 167
Double Dropwort, 454
Double White Campion, 454
Droseras, species and culture of, 425
Ducklings, management of, 430

EAGLES, Scotch, at Somercleyton, 57
Echeveria retusa, 3; culture of, 175
Edging tiles, 216, 287; preserving from frost, 28, 102; for garden, 47
Eggs—fertility of, 92, 148; keeping, 57, 74; preserving, 283, 333; shell-less, 92, 490
Eleagnus reflexa, 254
Employers' difficulties, 283, 346
Endive, culture of, 437
Epacrises, raising from seed, 162
Eranthemum pulchellum planted out in Switzerland, 155
Ericas—culture of E. hyemalis, 24; E. gracilis after flowering, 182; raising from seed, 167
Erythrina Crista-galli, 14
Escallonia floribunda, 275
Essex (South) Flower Show, 462
Eucalyptus in Australia and England, 436; E. globulus, 404, 462; destruction of E. globulus by frost, 428, 478
Eucharis amazonica, 148
Euchiæna luxurians, 346; as fodder grass, 391
Euonymuses for walls, 455
Eupatorium Weinmannianum, culture of, 98
Euphorbia Lathyris, 117
Eutaxia myrtifolia, 325
Evergreens, pruning, 313
Ewes, management of breeding, 220
Exeter Botanical Society, 276
Exeter Flower Show, 438
Exhibition guide, 42, 136, 153, 236
Exhibitors, classification of, 485

FAT FOR MANURE, 220
Fences for parks and meadows, 35
Ferns, British, 260; climbing, 357; Cornish, 50; culture of in frame, 260; culture for rooms, 313; for baskets, 5; for unheated fernery, 124; for vinery, 88; for window case, 296; hardiness of greenhouse, 173; in a case, 330; management of, 206; repotting, 50, 161; uses of, 213
Fertilisers, relative value of, 413
Ficus elastica, leaves rooting, 344; management of, 278; propagating, 359
Fig house routine, 258
Figs—culture, 347, 385; falling, 330; forcing, 34, 141, 205; forcing for early crops, 70; in pots, 181, 218; Osborn's Prolific, 10; stopping growth of, 104; thinning fruit, 464
Filberts, culture of, 16
Firs (Scotch), distance for planting, 143
Flower beds, arrangement of, 105; mixed, 331; summer arrangements, 292
Flower border arrangement, 296, 331
Flower farming, 426
Flower garden, notes on, 465; routine of, 386
Flower missions, 236
"Flowers and Ferns of United States," review of, 291
Flowers, arranging in beds, 162; in Ireland, 437; in winter, 466; notes on cut, 189
Fontainebleau Gardens, 197
Foot, gardener's, damage by, 28
Forget-me-nots for forcing, 375
Fowls—age for laying, 74; drooping and dying, 74, 128; eating egg-shells, 188; eating feathers, 74; food for, 318; for market purposes, 148; for winter, 58; history of domestic, 222; plumage soiled, 354; varieties for keeping, 74
Franciscea violacea grandiflora, 343
Fritillaria Karelini, 294
Frost—at Bristol, 47; Mr. Beaton's prediction for 1856, 88; in Buckinghamshire, 6; consequences, 304, 322; at Drumlanrig, 6, 175; in Durham, 81; duration of, 99; at Easingwold, 175; footprints of, 304; in Ireland, 47, 67, 121; in Lancashire, 65; in Northamptonshire, 134; in Scotland, 27; penetration of, 232; severe, 124; in South Wales, 79; in Surrey, 13, 27; in Wiltshire, 311; in Yorkshire, 6
Fruit and sparrows, 437; birds, destroying, 247, 290, and fruit buds, 122; blossom not setting, 423; culture extended, 311; culture of hardy fruit, 6; culture under glass simplified, 75; extent of culture in America, 117; hardy *versus* birds, 41, 116; judging, 170, 263; London central market finances, 156; moisture for gathered, 196; notes on growing, 301; preserving blossom from ants, 142; prospects, 272, 303, 320, 326, 423; in Bedfordshire, 455; at Chiswick, 358; in Dorset, 418; in Gloucestershire, 455; and in Lancashire, 418; protecting from birds, 245, 340; ripening, 409; syringing and ventilating, 76; thinning, 356
Fruit garden, notes on, 446
Fruit trees—evils of overcropping, 40; good mixtures for dressing, 121, 122; grafting, 272, 276; in pots, 122; planting, 238; prices in 17th century, 344; protecting, 254; pruning, 215, 238, 253, 260; spring planting, 69
Fuchsias, 246, 313; F. aurea superba, 117; F. Earl of Beaconsfield, 278; repotting, 33; F. thymifolia, 441
Fuel, trials of, 150
Fulham Nursery, spring flowers at, 232
Fumigating, 247, 289, 304, 341, 395
Funkias, propagating, 201

GAILLARDIA GRANDIFLORA, 453
Garden, cropping, 228; erecting walls, 466; new mode of painting structures, 102; notes from my in 1878, 97, 183, 208, 248, 374; and in 1879, 480; preparing kitchen for crops, 130; visit to at Monkton Wyld, 40; vitality of vermin, 136; work in kitchen, 302
Gardeners, duties of head, 163; foot, 65; longevity of, 5; old colony of, 2; young, 44; complaints and difficulties of young, 102, 111, 139, 153, 176, 199, 227, 289
Gardenias, culture of, 446
Gardening, advance of, 1; kitchen in 1879, 4; hints on landscape, 226; writers on, 129
Gastrolobium villosum, 408
Geese, management of, 351; Toulouse for exhibition, 20
Genista precox, 485
Gentiana acaulis, 355; G. Andrewsii, 381
Gentianella seed failing, 387
Geraniums, compost for, 142; for bedding, 142; in pots, 428; leaves browned, 220; leaves spotted, 314; Princess Alexandra for bedding, 80; variegated, 142
Geum coccineum fl.-pl., 454
Gilbert's new Cabbage Broccoli, 12, 46, 63, 84
Gladioluses at Bishop Auckland, 254; culture of, 208; disease, 129
Glass, cleaning laps of, 124; for vineries, 174, 195, 196, 289; rough plate, 290
Glass structures, small *versus* large, 152
Glazing without putty, 142, 189
Glucose, what is? 371
Gnaphalium arenarium, 453
Goethea Mackoyana, 407
Golden-flowered Columbine, 454
Goldfussia isophylla for winter, 76
Gooseberry buds and birds, 210, 227, 240
Gooseberry, Cape, culture of, 182
Gossip, a bit of, 339
Grafting fruit trees, 272, 276
Grafting wax, application of, 135; making, 183
Grape Hyacinths, choice, 375
Grapes—berries setting, 71, 78; bunches curling, 428; culture without fire heat, 44; failure in March, 232; fertilisation, 232; Frontignans for pots, 22; Grapes and Peaches in same house, 3, 16; Grapes, Peaches, and Figs combined, 79; keeping in water, 104; keeping in water at Stanfield House, 80; notes on, 21, 118, 151; not keeping, 290; rusted, 368; scalded, 368; setting, method for, 100; under severe frost, 27; varieties of, 100; white for cool vinery, 447
Grass land, irrigation of, 124, 143, 163
Grass, new, for fodder, 391
Grasses, varieties of, 163
Greed, gardeners', 40
Greenhouse—climbing plants for, 485; erecting, 296; heating, 53, 124, 201, 220; routine, 286; site for, 387; Vines and plants in 87
"Greenhouse Favourites," review of, 441
Greenhouse plants, management of, 465; propagation and culture of, 233, 295; pruning and potting of, 427; treatment, 52
Greens, Curled, 213
Grubs infesting Strawberries, 52
Guano, 260; for Strawberries, 202; strength of for watering, 163; testing quality of, 156
Guide, exhibitors', wanted, 42
"Guide to Successful Chicken Breeding," review of, 389
Guinea fowls, 298

HABROTHAMNUS ELEGANS, 202
Hale Farm Nurseries, Tottenham, 309
Haleeia tetraptera, 480
Hanover Horticultural Society, 6
Hardy flowers for May, 355
Harrison's Giant Musk, 285
Hatching and chickens, 185
Hawfinches, 321, 365, 384, 406
Hawk, destructiveness of tame, 138
Hawthorns, fasciated, 83
Hay prospects, 450
Heaths, potting and management of, 104
Heating, 320; apparatus defective, 17; estimate of piping for, 349
Hedge under trees, 390
Hellebores, culture of in pots, 124; nomenclature of, 79; notes on, 79, 153; at Tooting, 275
Helleborus odorus, 82; H. olympicus, culture of, 28
Hemerocallis flava, 453
Hens, hatching hatching ducklings, 168; food for, 127; egg-bound, 490
Hepaticas, 284
Herbaceous plants, 323, 343, 345, 374; dividing and culture of, 277; for June, 453; select, 349, 489
Herbs, scarcity and dearness of, 232; sowing and planting, 295
"Herefordshire Pomona," review of, 84
Hertfordshire Bee-keepers' Association, 57, 317, 333
Hesperis matronalis, fl-pl., 453
Hinds, Mr., testimonial to, 156
Hives, see *Bees*.
Holmes, Mr., death of, 47
Holloway Nurseries, 236; choice plants in, 310
Holly, Golden Queen, renovating, 10
Holstein cattle for dairies, 317
Home farm, retrospect, 17; work on, 30, 54, 72, 89, 107, 125, 144, 164, 184, 203, 221, 242, 262, 279, 297, 315, 332, 350, 370, 389, 410, 429, 449, 467, 486
Honey for cakes, 223. See *Bees*.
Hops for hotbeds, 106, 202
Horn-leaved Saxifrage, 356
Horseradish, planting, 218
Horses, farm—breeding and rearing of, 88, 106; shoeing of, 409, 429
Horticultural Club, dinner, 213; election of Committee, 65
Horticultural (Royal) Society—Annual Meeting, 114; Auricula Show, 305; Committee Meetings, 46, 120, 193, 270, 305, 359, 430, 478; Great Summer Show, 395; King of the Belgians' visit, 229; medals awarded, 423; Popular Show, 424; privileges of Fellows, 47; and the late Princess Alice, 84
Horticultural (Royal) Society of Ireland's Show, 378; Spring Show, 310
Horticultural tour in the west, 77, 98
Horticulture, fascination of, 2
Hospitals and Rose shows, 459
Hotbeds, making, 33
Hot-water apparatus, 324; arrangement of pipes for, 93; circulation of, 202
Hovea Celsii, 479
Humea elegans, 442
Hyacinths, after flowering, 259, 278; introduction of, 182; in the London nurseries, 233
Hybridising, 175

ICE STACK, FORMING, 17
Illicium religiosum hardy, 288
Incubators, 299
"Insects, Notes on Injurious," review of, 214
Insects, notes on for gardeners, 50
International Horticultural Exhibition, 455
Inula Hookeri, 328
Ireland, notes on flowers in, 437
Irises, 471; I. dichotoma, 407
Iris gardens at Hori Kiri, 211
Isle of Wight Poultry Show, 127
Isola Bella gardens, 252
Ivies, for pillars, 71
Ivy for walls, 447; stems, large, 156
Ixias, 323; causes of failure of, 129 culture, 173, 286

JAPAN, VISIT TO, 211
Japanese plants, 472
Japanese Wax Tree, 438
Jeffersonia, culture of, 51
Jersey Poultry Show, 54
Judging, standard required for, 42
June, twelve hardy herbaceous plants for, 453

KARL KOCH, DR., DEATH OF, 407
Kerry cattle, 487
Kew Gardens, 190; flowers at, 252, 286; notable plants at, 360; novelties at 76
Kidney Bean forcing, 180, 478
Kingston and Surbiton Horticultural Show, 481
"Kitchen Gardening Made Easy," review of, 347
Kitchen garden notes, 394, 437, 445

LAND, DIVISION OF PARK AND pasture, 35
Landscape gardening, hints on, 226
Langshans, 144; *versus* Cochins, 165
Lapageria not thriving, 143
Lardizabala biternata, 105
Lawns in ten days, 29; destroying weeds on, 156; manure for, 156; renovating, 106, 123, 124, 134, 218, 277
Leaves, obtaining impressions of, 485
Leeds Gardeners' Society, 64
Leghorns, properties of, 206
Leucophyton Brownii, 174
Light, influence of, 320
Lilies, Guernsey and Jacobæa, culture of, 182; hardy, 356
Liliums—auratum, 129, 132, 196; culture of L. auratum, 135; culture, 71, 323, 349; L. lancifolium, usefulness of, 183; seedling, 220
Lily of the Valley, forcing, 220; planting, 447; preparing for forcing, 259
Lily trade in Japan, 343
Lime for Vine borders, 349; uses of in cultivation, 56; value of for dusting trees, 135
Lime tree wounded, 220
Limewash, 361
Linaria dalmatica, 381
Lindsæa culture, 172
Linnæa borealis, 87
Linum trigynum, culture of, 101, 134, 212; value of for winter, 154
Liquid manures, 249; applying in winter, 176, 197; deodorising, 261; inodorous, 230, 240
Liverpool Horticultural Society's Show, 269
Loasa vulcanica, 328
Lobelias, propagating, 163; raising from cuttings, 240; raising from seed, 296
Lucerne culture, 388; in orchards, 413
Luminous plants, 87
Lychnis chalcedonica flore-pleno, 453; L. fulgens, 356; L. vespertina, 454
Lycopodium Selago, 463
Lygodium scandens, hardiness of, 135

MAHONIA FASCICULATA HYBRIDA, 401
Magnolia conspicua, 361; M. fuscata, 378
Management, hints for, 301, 338
Manchester Flower Show, 410; Spring Show, 342
Mangold Wurtzel sowing, 332
Manures—concentrated, 18; for fruit and vegetables, 94; guano, 260. See *Liquid Manures*.
Market gardens of London, old, 13, 439
Masdevallia tovarensis, 47
May, hardy flowers for, 355
Megaseas, 207

Melons—covering pipes in pit, 182; culture, 35, 141, 330, 367, 368, 408, 484; forcing, 181; in greenhouse, 105; management of, 259, 295; notes on, 446; pit for, 35; planting and training of, 103; raising plants of, 15; rough, 53; stopping, 105, 387
Memories, sunny, on gardens, 40
Mignonette culture, 265; in pots, 324; judging, 387
Milk, blowing cream off, 264
Mistletoe, culture of, 235
Mixed cultivation, 250, 309
Moisture for cut flowers, 196
Monnina xalapensis, 346
Monochætum Lemoineanum at Kew, 77
Moore, Dr. D., death of, 444
Mowing, 291
Mushrooms—covering beds of, 105; culture of, 140, 238, 311; failures, 75, 177; growing under difficulties, 132, 175, 209; improving house for, 75; preparation for, 15; watering, 105
Musk, Harrison's Giant, 285

NANKIN BANTAMS, 262
Narcissuses, 361, 381
Nasturtiums, sowing, 328
National Rose Society, 78, 113; schedule of, 42, 60
National Show of Auriculas, 305
Nectarines, culture, 386; forcing, 87, 161, 238, 295; for succession, 426; leaf blister, 482; management, 312; mulching and watering of, 464; thinning fruit, 312
Nepenthes, 461; culture of, 312
Nepeta spicata, 276
Nertera depressa culture, 368, 380
Newcastle Horticultural Show, 288
Nicholl, Mr., testimonial to, 65
Night soil, applying, 349
Nonnea lutea, 300
Nooks and corners, utilisation of, 111
Northumberland weather, 213
Notes on "D., *Deal's*," notes, 129, 173
Nursery and Seed Trade Association, objects of, 100
Nurseries of London, old, 13, 439
Nuts, Cobs, time for bearing, 88
Nymphæa alba, 463

ŒNOTHERA ANISOLOBA, 118; Œ. fruticosa, 120; Œ. speciosa, 120
Oilcake imported, 222
Onions, destroying grub of, 269
Oranges, culture of, 348; introduction of, 53; soil and temperature for, 88
Orange tree unfruitful, 220
Orchard house, amateur's, 121; management of, 70, 160, 230, 312, 367, 408; my, 272; relative dimensions of, 105; ventilating, 105
Orchid house, piping for, 142
Orchids—culture of cool, 22; flowering at Kew, 253; management of, 182, 277, 446; notes, 357, 367; potting, 104, 446; temperature for, 104
Ornithidium coccineum at Kew, 276
Oriental Poppy, 356
Overcropping fruit trees, evils of, 40
Owls as vermin destroyers, 431

PÆONIA TENUIFOLIA Fl.-Pl., 356
Palms for table decoration, 312; in Covent Garden Market, 71; notes on, 356
Pancratium maritimum culture, 216; P. speciosum culture, 330
Pansies for exhibition, 368; properties of, 428
Papaver orientale, 356
Paraffin as an insecticide, 7, 44, 47, 65, 98, 142, 252; for heating frames and stoves, 79; its use and abuse, 294, 344, 385, 388, 402; not injurious to seeds, 274
Parsley, early, 394; in pots for winter, 22
Passiflora cærulea in Kent, 23
Patshull Park poultry yard, 89, 125
Paulownia imperialis, 477
Peaches—buds dropping, 260; disbudding, 123; forcing, 52, 87, 161, 201, 238, 295; for succession, 426; fruit dropping, 202; injured by frost, 201; in unheated houses, 183, 320; management, 312, 426; pruning, 202; setting blossom, 15, 195; setting fruit, 228; thinning blossom, 123; thinning fruit, 312
Peach house, a cheap, 24, 62
Peach trees—culture, 386; leaf blister, 482; mildew on, 369; mulching, 464; unhealthy, 278; watering, 349, 464
Pears—experiments in ripening, 129, 173; for exposed situation, 53; growing, 251, 285; list of varieties, 77; merits of some, 207; notes on, 170; preventing insects on, 428; proposed election of, 60, 77, 101, 112, 132, 152, 174, 266; prospect of in Wiltshire, 426; ripening, 176; shrivelling, 142; what sorts to grow, 12, 59, 112. Beurré Diel not ripening, 202; Délices de Jodoigne, 270; Warden, 192
Peas—culture of field, 261; dwarf varieties of, 53; early, 238; for late crops, 366, 394; for succession, 171, 191, 237, 296; good varieties of, 418; hardiness of, 238; notes on, 61; protecting from mice, 44; sowing, 328
Pelargoniums—colours of some, 485; select Regal, 409; select varieties, 260, 368; notes on Show, 485; Zonal for autumn and winter, 173; exhibiting cut flowers of Zonal, 88; select varieties of Zonal, 124, 135, 162
Pencils, Wolff's garden, 121, 140, 1 9, 177
Perennials, hardy, for beds, 368, 388; raising from seed, 428
Peristeronic (National) Society's Show 56, 73
Petrea volubilis, 343
Petroleum an insecticide, 7
Phajus grandifolius, culture of, 278
Phlox divaricata, 441
Phylloxera, 479
Physalis edulis, culture of, 182
Picotees—171, 267, 465; culture, 215, 404; list of, 190
Pietermaritzburg, 213
Pigeons—hints for young amateurs: Pouters, 450
Pillar plants, 326
Pine Apples—culture, 329, 366, 484; management of, 52, 104, 161; potting, 259; starting suckers, 161; temperature, 259, 446
Pink, common white for forcing, 226
Pipes, hot-water, stopping leakage in, 53
Piping for heating required, 349
Plant houses, shading, 415
Plants at Copt Hall, 354; for conservatory, 183; for flowering in autumn, 260; for flowering in September, 143; for shady border, 188; for stove and greenhouse, 260; for window boxes, 368; raising subtropical from seed, 123; repotting stove, 87; resting period of, 32
Pleiones, culture of, 278
Plymouth Flower Show, 422
Poinsettias at Croxteth Park, 5; notes on, 170
Polyanthus, double variegated, 344
Poppy, Oriental, 356
Posoqueria longiflora, 479
Posts, preserving, 35
Potatoes—American crop, 223; fertilisers for, 314; for field culture, 87; imports of, 56; late kinds, 230; Murray's machine for planting, 316; planting, 260; planting early varieties, 160; Scotch Champion, 285; Suttons' Magnum Bonum, 43, 64, 80; varieties for succession, 162
Potatoes—"How to Grow and Show Them," review of, 268; "How to Grow Potatoes with Success for Exhibition," review of, 268
Poultry Club, 333; officers of, 243
Poultry—experiences, 107, 126, 165, 185, 351; farming, 468; foods, 487; for table use, 222; hints on, 431; in 1878, 37; late entries at shows, 109, 164; past, present, and future, 18; at Patshull Park, 89; results of keeping, 107; rules for keeping, 204; scientific mating of, 242, 298; shows in coming season, 411
Press for drying plants, 201
Primroses, sowing seed of, 260; P. Scott Wilson, 135, 162
Primulas—abnormal flower of, 47; culture of P. sinensis, 137; damping, 16; P. denticulata var. purpurea, 272; at Perry Hill, 232; at Reading, 32; P. rosea, 286; sowing Japanese, 183; sowing seed of, 183
Propagating frame, Rippingille's, 325
Propagating, notes on, 249
Protectors, glass, value of for raising seedlings, 150
Pyrus japonica as a Pear stock, 135

QUETTAH, CULTURE AT, 175

RABBITS, FATTENING, 165; in New Zealand, 450; points of Belgian Hare, 318
Ranunculus aconitifolius fl.-pl., 356
Ranunculuses, new, 286; at Tottenham, 361; tubers, 485
Raspberries, autumn, 220; canes killed, 325; pruning of, 296; wire trellises for, 311; on wire trellis, 341
Reading Flower Show, 405
Reading Pigeon, &c., Show, 90
Red spider, clean water *v.* sulphur, 7; Rhododendrons at Coombe Wood, 475; and at Duneevan, 474; forcing of, 53; R. dauricum, 252; Multiflorum, 272; Princess Alice, 272; Prince Camille de Rohan, 232; and Veitchianum, 235
Richardias, culture of, 240; R. æthiopica culture, 376, 416
Richmond Horticultural Society's schedule, 27
Rockwork, stone for, 71
Roof trellers, 248
Room decorations, 94
"Rose Annual" for 1878-79, review at Mr. W. Paul's, 49
"Rosarian's Year Book," review of, 66, 99
Rose garden at Mentmore, 81
Rose hedges at Valentines, 48
Roses—ants attacking, 447; box for twenty-four blooms, 485; boxes for exhibition, 387; Briar cuttings, 44; Briar *v.* Manetti, 26, 63, 137; century of in France, 435; classification at National Show, 34; climbing, 106; cut blooms from Cornwall, 310; cuttings striking, 201; dark varieties, 313; dwarfs *v.* standards, 209; effect of frost in Lincolnshire, 304; and in Yorkshire, 130; effect of season on, 227, 250, 253; exhibiting, 2, 273, 387; for north and east wall, 142; fragrant, 227; at Hereford, 323; house for, 260; in 1860 and 1878, 416; in France, 357; in the midlands, 302; in the north, 266; in pots, 257; jottings, 321; judging, 133; Manetti *v.* Briar, 26, 63, 137; manure for, 349; names *v.* numbers for, 150, 234; notes on, 285; old and new, 95, 131; our grandfathers', 479; planting, 35; for planting under glass, 142; pruning, 218, 250, 260, 321; red for greenhouse, 183; relative hardiness, 320; reports, 253, 322, 375; scented, 157; scentless blooms, 133, 172, 195; shade for Tea, 249; season prospects, 474; show and garden, 228; show prospects, 454; standards *v.* dwarfs, 209; stocks for, 137, 152; treatment under glass, 326; unhealthy, 485; varieties for forcing, 34, 35; varieties synonymous, 67; voice from Wales, 32. *Teas*—for bouquets, 108; forcing of, 142; and Noisette, notes on, 23; in Peach house, 437; and in pots, 240, 447; varieties of for winter, 53; at Waltham Cross, 436; Baronne Prévost, 228; Cheshunt Hybrid, hardiness of, 195; Gloire de Dijon, 44; La France, 344; Mabel Morrison, 385; Maréchal Niel, 278; cankering, 12; for market, 459; a Noisette, 289, 326; not expanding, 447
Rose shows and hospitals, 459
Royal Caledonian Horticultural Society's Spring Show, 274
Royal Western Horticultural Show, 422
Rudgea macrophylla, 325

SAINTFOIN, CULTURE OF, 297
Salvia Heerii, culture of, 112
Sanchezia nobilis, culture of, 200
Sawbridgeworth in May, 433
Saxifrages—cæspitosa, 463; S. ceratophylla, 356; S. oppositifolia, 463; in Kew Gardens, 213; species for forcing, 308
Scale, destroying on trees, 142, 143
Scarborough Poultry Show, 108
Schizanthus culture, 377
Schizostylis, culture of, 183
Scorching of foliage, 195
Scottish Horticultural Association, 200
Scottish Seed Trade Association, 64
Scrophularia marilandica, 447
Seakale culture, 387; forcing, 180; planting crowns of, 162; planting roots of, 105; thinning crowns, 105
Season's effects, 477
Seaweed, ashes of, for Vines, 296
Seeds—early ordering of, 30; duration of vitality of, 9, 43; germination of old, 63; how to test the germinating power of old, 16; importance of sowing thinly under glass, 142, 149; new for sowing, 63; new and old mixed, 117; old, 16; protecting from birds, 375, 418; raising, 330; selection of vegetable, 33; sowing, 190; sowing kitchen garden, 295; vitality of frozen, 162
Seed trade, note on increase of, 156
Selaginella denticulata, 380; for carpet beds, 162
Shaddock, 253
Shading with Bamboo, 292; plant houses, 415
Sheep—feeding and fatting, 314, 331, 349, 369; management of Down breeds 53, 71; and of Long-woolled ewes, 220, 241; mortality among, 55
Sheffield Gardeners' Society, 231
Shrewsbury Show, disqualification at, 109
Shropshire Horticultural Society's finances, 155
Shrubbery ornaments, 401
Shrubs for seacoast, 117; hardy flowering, 348; pruning, 209
"Sitting Hen," review of book, 389
Skimmia japonica and birds, 252, 287
Slugs, vitality of, 213
Snails in 1878, 251
Snowdrop Tree, 480
Snow, great fall of in London, 156; in Yorkshire, 27
Soil—difficulties, 169, 197, 208, 234, 321; draining, 234; for potting, 448
Solanum Dulcamara, 142; S. jasminoides, 345
South Hill, 379
Southport Flower Show, 237
Sowing seeds, 190
Sparrows, 483; in gardens, 437
Spiders, 290; and plants, 347
Spinach, spring, 344
Spiræa japonica after flowering, 348; S. Filipendula fl.-pl., 45; S. prunifolia flore-pleno, 401
Spring, arrival of, 194
Spring bedding, 234
Spring flowers in Ireland, 437; at Tottenham, 309
Stables, drainings of, 124; waste, 168
Staphylea colchica, 66
Stems of trees, cleansing, 218
Stephanotis floribunda a roof plant, 23; culture of, 313; not flowering, 182, 348
St. Helena, prices of fruit, &c., at, 87
Stocks, for Apples, trial of at Chiswick 358; for Roses, 63
Stone-fruit seed germination, 175
Stopping, rationale of, 454
Stove plants, 348; propagation and culture of, 230, 239, 259, 312, 446; temperature for, 260
Stoves, paraffin, for heating purposes, 26; Syers's, 196
Strawberries—forcing, 304, 464, 473; preparing for forcing, 484; varieties for forcing, 393; is it a fruit? 463; in pots, 96, 141, 201, 367, 427; mildew on, 314; select varieties, 277, 436; Sir Joseph Paxton, 436; spring, 215, 249
Streptocarpus Saundersii, 459
Suburban gardening, 33, 69, 121, 180 217, 257, 328, 365, 445
Suburban villa farming, 486
Sulphate of ammonia, application of 240
Sulphur *versus* red spider, 25
Summer, waiting for, 339, 343; probably hot, 379
Sundews, culture of, 425
Sunny memories, 40
Sunshine, absence of, 151, 156
Supers, see *Bees*.
Sussex weather, 251
Sutherland, Mr., presentation to, 6
Swansea Flower Show, 291
Swine, management of, 38
Syringing, efficacy of, 7

TABERNÆMONTANA CORONARIA culture, 220; T. cymosa, 423
Table plants, culture of, 312; select list of, 314
Tacsonia, pruning, 183; T. Van-Volxemi seeding, 330
Tares, cultivation of, 279
Teosinte as fodder, 391
"Tea Roses, and How to Grow Them," review of, 441
Thalictrum aquilegifolium, 438
Thermometer, fixing, 163; variations of, 41, 68
Thorns, fasciated, 117
Tiles, circular stepping, 240; edging, 28, 47, 102, 216, 287, 341; Staffordshire for Rose beds, 195
Tillery, death of Mr. W., 360
Tobacco water, 485
Todea superba, treatment of, 183
Tomatoes—culture, 218, 365; early, 394; stopping, 387, 448; under Vines, 374, 418, 443
Tooting Nurseries, sale of plants at 64; a visit to, 275, 294
Topics, current, 195
"Town and Window Gardening," review of, 438
Trees, composition for dressing, 87, 163; loftiest, 344; measuring heights of, 192; planting on slopes, 226; protection of wall, 134
Trenching ground, utility of, 163
Trollius asiaticus, 355
Tulipa triphylla, 286
Tulips, a plea for, 158
Turkeys, 316, 332; hens as foster-mothers, 280
Turnip, Mousetail, 202

UPLANDS GARDENS, 340

VALERIANA PHU, 348
Vale Royal, 342
"Vegetables, and How to Grow Them," review of, 347
Vegetables dried, 194; effect of frost on, 41; forcing, 15, 69, 103, 140; growing in London, 278; notes on, 8; scarcity of, 231; sowing early, 122
Veitch's Nursery, Royal visit to, 231
Verbenas, raising from seed, 162
Vermin, vitality of garden, 150
Veronica Hulkei, 441; V. longifolia var. subsessilis, 294
Villa gardening, notes on, 33, 69, 121 180, 217, 257, 328, 365, 445
Villanova chrysanthemoides, 381
Villarsia capitata, 381
Vincas, culture of, 312
Vinery, temperature of early, 220

Vines—aërial roots on, 428; applying liquid manure, 296; autumn *versus* spring heat, 267, 287; border for, 260, 296, 331, 369; breaking irregularly, 53; and weakly, 260; bunches curling, 200; culture, 225, 347, 335; destroying thrips on, 162; disbudding, 368; early management, 15, 70, 86, 100; marching, 262; injured by sulphur, 448; in pots, 258; leaves not expanding, 240; leaves scorched, 240, 313, 314; management in houses, 201, 238, 277, 311; on hot-water pipes, 434; planting, 277; potting, 104; preventing mildew, 105, 466; pruning late, 51; pruning outdoor, 200; raising from eyes, 225; replacing old and planting young, 124; spring *versus* autumn heat, 267, 287; starting, 261, 296; stems cracking, 142;

VINES—Continued.
stopping, 409; stopping shoots, 466; summer management, 426, 464, 472; syringing, 313, 314; thinning and disbudding, 122; training, 180, 368, 373, 402, 416; unfruitful, 349; varieties for planting, 160; watering with liquid manure, 183; with Peaches in unheated house, 5, 16, 172, 212

Violas, propagation of, select varieties, 123

Violets, dividing and planting, varieties of, 313

WALTHAM CROSS NURSERIES IN May, 454
Wansfell Gardens, notes on, 102
Warden pie, 192
Wasps, poison of stings, 281
Waterfowl, tameness of, 109
Watering, 341
Water Lily, White, 463
Water Melon culture, 330
Wax Tree, Japanese, 438
Weather, change of, 100; effects of dull, 135; inclemency of, and vegetables, 232; and kitchen garden work, 130; record of in Yorkshire, 49; severity in France and England, 290; in Ireland, 31; near London, 47; in Scotland, 156, 290
Weeds on pavement, 368
Week, work for, 15, 33, 51, 69, 86, 103, 122, 140, 160, 180, 200, 218, 238, 258, 276, 294, 311, 329, 347, 366, 385, 407, 426, 445, 464, 483
West, horticultural tour in, 77, 98
Wheat, consumption of, 109
When should we dig? 179, 199
Window box, evergreens for, 349
Window plants, 330, 368; bottom heat for, 447; management of, 428
Wine-making, Californian, 213
Winter, effects of in Devon, 417; in Northumberland, 439; and in Surrey, 155; "Murphy's," 124; in the north, 303; in South Wales, 79; its ravages, 253; weather, 13
Work for frosty weather, 6
Work and wages in gardens, 364, 389, 406

YEAR, NEW, ADVICE FOR, 1
Yellow Day Lily, 453
Yews in churchyards, 253; poisonous to cattle, 205, 290
York Floral Fête, 475
Yucca filamentosa variegata, 117

WOODCUTS.

	Page
Adiantum Williamsi	402
Adonis vernalis	119
Anemone narcissiflora	138
" patens ochroleuca	217
" stellata	293
" sylvestris	158
" thalictroides	179
Apiarian appliances	167, 168, 264, 413
Aponogeton distachyon	45
Apples—Lane's and Smart's Prince Albert	322
Auricula stage	419
Bamboo shading	292
Bee veil	264
Birdsall House Conservatory	327
Carpet bedding	97, 228, 254, 340
Ceanothus dentatus	443
Cloverley Hall	11
Crassula lactea	62
Cypripedium Lawrencianum	442
Dipteracanthus spectabilis	460
Edging tiles	216, 287
Eleagnus reflexa	255
Fig—Osborne's Prolific	10
Fontainebleau Gardens	197
Fumigating	304
Gastrolobium villosum	403
Grafting	272
Halesia tetraptera	481
Hampton Court carpet bed	97, 178
Helleborus odorus	83
" olympicus	29
Hives—Raitt's	146
" Arab	244
Kerry Cattle	488, 489
Linum trigynum	101
Narcissuses—Empress and Incomparabilis	363
" papyraceus	383
" poeticus angustifolius	382
Nepenthes Courtii	461
Œnothera anisoloba	119
Peach House, cheap	25
Poultry yards	352
Primula denticulata purpurea	273
Rake	268
Rhododendron Veitchianum	235
Rose garden at Mentmore	82
Rose hedges at Valentines	48
Saxifraga (Megasea) ligulata	308
Solanum jasminoides	345
Staphylea colchica	66
Stove, Syers's	196
Tabernæmontana cymosa flore-pleno	423
Wax sheets	109

1308 case

WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 2—8, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age.	Clock before Sun. m. s.	Day of Year.
2	TH	Michell, botanist, died, 1737.	41.9	28.9	35.4	8 8	4 0	11 37	2 9	10	4 13	2
3	F	Josiah Wedgewood died, 1795.	43.4	31.1	37.1	8 8	4 1	11 57	3 20	11	4 41	3
4	S		42.6	31.5	37.0	8 8	4 2	0 a 24	4 31	12	5 9	4
5	SUN	2 SUNDAY AFTER CHRISTMAS.	41.8	30.4	36.1	8 8	4 3	1 1	5 40	13	5 36	5
6	M	EPIPHANY.—OLD CHRISTMAS DAY.	41.5	29.5	35.0	8 7	4 5	1 51	6 42	14	6 2	6
7	TU		41.6	29.0	35.3	8 7	4 6	2 55	7 34	15	6 28	7
8	W		40.9	30.9	35.5	8 6	4 7	4 11	8 14	○	6 54	8

From observations taken near London during forty-three years, the average day temperature of the week is 41.9°; and its night temperature 30.0°.

ADVICE FOR THE NEW YEAR.

MUCH good advice has been given to all of us in our time, and but very little has been remembered; yet occasionally some little bit comes back with power, aye! and does us good; it goes home to our hearts and bosoms and bears fruit in our lives. Then, again, we remember only some persons we have met in life; the many and all they said pass away from us, but now and then a word or a look from someone we knew years ago comes back to us, and that does us good. We cannot remember everything, but we do remember some things of use and of profit.

This world may truly be called in a general way "a forgetting world." It is painful to notice how some people apparently delight in forgetting the past of their lives; this is the case too often with newly rich or much risen people, and a very bad trait it is in such. But it is not always so. Not long since I was brought in public into the presence of a man who had made himself a grand position from a small beginning, and greatly I admired his bearing and words, but I more greatly admired the man when I heard that he had never forgotten or turned his back upon one of his old humble friends. But there is one old friend, or it may be if you have treated him badly—viz., acted badly, an old foe—I mean Father Time. How he is forgotten! how people try to forget him, determine to forget him, try to look young! Both sexes are often equally foolish in this respect. People try to forget time; they hurry on, remembering not the past, but forgetting vigorously. They would have spurned Ophelia had she come to them with the sweet present and sweeter words—

> "There's Rosemary, that's for remembrance;
> Pray you love remember."

But though so many forget Time and his warnings until *too late*, they having failed to catch him by the forelock, yet he will be noticed, seen, and heard at least once a year, and that once now when he stands—he, the old, bald, bent man, with scythe in hand, and staring into the faces of us all he solemnly turns his glass, the last sand having slowly run through, and says, with his glittering eye on us, "The old year is passed, it is gone, gone for ever, and a new year has come." Time, Old Father Time as we call him, will be heard just now; let us see what he can say to us for our benefit of the past and future, and take the advice that falls as it were from his very presence.

Now the chief subject of these pages is horticulture, as our principal title plainly declares, for ours is the *Journal of Horticulture*, and a journal means a daily register. We register once a week the daily work and doings and improvements in the floral, fruit, and vegetable world. The trained minds of men who have made horticulture their profession lay their thoughts and experiences before the world. The amateur, often an enthusiast, brings his budget to aid and instruct. He makes not a profession of the science, it is true, but enters deeply into the pleasures of horticulture. But beyond and above profession and pleasure, the progress of gardening is a sure mark of the progress of a nation. The Romans brought Italian flowers and fruits, and England advanced. Then on their leaving was a pause in the nation's prosperity, and we do not read of garden improvement. Then the Normans came, and many a noble's and monastic's garden glowed with the fruits of sunny France, and the nation advanced. No country of Europe is in such a standstill condition as Spain, of which perhaps its best describer O'Shea writes, under the head of "Gardens"—"Spain ought to be the land of gardens, the paradise of flowers. The requisite shade under a scorching sun, the wants of a vegetable rather than an animal food for the people, the fertility of the soil, the wonders that the combination of heat and moisture produce there, &c.—all these reasons exist, and yet the commonest flowers are costly in price, there is a great scarcity of gardens, and the love or fashion for flowers is unknown." This, true of standstill Spain, is happily utterly untrue of Great Britain. In all parts of the country, and in none more specially than near our great towns, do we see the advance of horticulture. No sooner do a man's circumstances improve than he improves his home, surrounding himself by a well-kept garden. Gardening advanced in England just as England advanced. In Charles II.'s time all was artificial, when, to borrow Lady Morgan's *mot*, "Nothing was natural except the children," and the artificial taste in gardens and grounds prevailed. Whereas Gray, writing in 1763 when England was improving naturally, notices the great skill in gardening and laying out of grounds that began to prevail, declaring it to be in England "our only proof of original taste in matters of pleasure."

The stiff cold style was gone when it was written—

> "No pleasing intricacies intervene,
> No artful wildness to perplex the scene;
> The suffering eye inverted Nature sees
> Trees cut to statues, statues thick as trees."

But Bridgman and Kent brought freedom and variety, following Nature instead of discarding or defacing her. And this has been more and more true as this century has advanced. Occasionally we see a fancy running into absurdity. Thus, as the artificial style above noticed was, adopting it as a whole, truly absurd; so when the bedding-plant mania was at fever heat we had another absurdity—the limiting our preference for one class of flowers, and they the most gaudy, and arranged most artificially. Happily the bedding rage and ribbon-border fancies have been somewhat kept in check, and the total extermination of many flowers which was threatened has not taken place.

If gardening is to be, as I think it is, the improvement of Nature, we must follow, in a degree at least, the teaching of Nature. Nature is fallen, though glorious; it is the gardener's place to remove the stains of the fall. Yet even unadorned Nature is sometimes very glorious; take, for instance, this description of a scene in a French forest: "Our walks often led us to what we called our forest orchard, where the thrushes and blackbirds came for the meal which good mother Pomona provides for them by day. By night she lodges them amid thick bushes that fairly hang down with fruit, while beautiful flowers carpet

the ground. When June has half run its course Strawberries and Raspberries perfume the thickets; then the black Cherry ripens. But in autumn the forest is most prodigal of its riches. By Sainte Madeleine, as the proverb says, the Walnuts are full; the leafy Hazel stretches out its twin nuts, with hoods curiously jagged and twisted; the squirrels run about storing their winter provision; the wild Plum purples the hedges; Crabs and wild Pears offer their fruits amidst the red foliage of their ungrafted stocks; clusters of Cornel berries, like vermilion Olives, ripen beside the scarlet Barberry."

Beautiful as this piece of word-painting is, and beautiful, doubtless, as is the scene which it describes, yet a forest is but a dank, undrained, chilly place, walking hindered by straggling trailing growths, and the ground uneven; it is at best beauty which wants man's judicious hand to put in order. No forest is equal to a well-planted and well-kept park, where the Copper Beech stands near some bright green tree, and where an emerald and smooth sod carries the eye under even the lowest branches of the most beautiful Horse Chestnut; and where the winding bright gravel carriage drive runs on and on in graceful curves, and where the dappled deer graze in the shadow of the big trees, and startled by a passenger's footfall look at him steadily for a moment, and then, like discreet light cavalry, retire further, and the twinkling ears and tails vanish in the distance.

It is a gardener's glory to improve Nature—to turn the Crab into the Apple, to prolong the flowering of plants, to concentrate scattered beauty in flower and foliage, and to turn the forest into the park, for a well-managed park and garden are Nature at perfection. Gardening has such a fascination in it, that although there are many sons who care not the least for their fathers' profession or trade, they never thinking it necessary or natural that they should follow it, but I believe it is quite the contrary with gardeners. Gardener's son becomes, though not in the same place, a gardener; or if he can command capital enough, or what is quite as good (listen, young men) makes himself indispensable to his senior and his master, is able to become a market gardener, and we know how the same names go on in market-gardening and seed businesses.

I have a true story to tell of gardeners who have actually as a colony gone on, fathers succeeded by sons, from A.D. 1422 to this very year—that is, for 456 years, and in the same place. It is in France, the land of fruit culture. There is a Scottish colony of gardeners at St. Martin's d'Auxigny near Bourges. Its history is this: When Charles VII. of France was in retirement at Bourges he had a Scottish guard, whose High Constable was John Stuart of Darnley. In 1422 this gentleman established himself with his companions in arms at St. Martin's. Special privileges were granted to the settlers until the revolution of 1789. The colony now numbers three thousand inhabitants; and the people, thus in some degree isolated, have maintained their nationality to the present day, the members marrying among themselves. Even now the people of the surrounding district call them "the English," but they call themselves "the Scotch." They have a strong regard for the country of their forefathers; they are Protestants in religion, and are very industrious and honest. They devote themselves, as they have always done since their settlement as a colony, to the culture of fruit. Each male possesses a small plot of ground, and the produce is sent to Bourges, Orleans, and Paris. Who knows but these interesting people had Scotch gardeners for their remote ancestors, and when they dropped soldiering resumed gardening? However, be that as it may, there they are, devoted generation after generation to fruit culture.

There must be, and there is, a wonderful fascination in horticulture: it pleases the highest and the lowest, the town-bred and the country-born. Many a man who in the battle of life has become hard, and cold, and stern, yet has a tender memory not only for the place of his birth but for the garden of his childhood. Such an one was William Cobbett, a fierce combative man; and yet he writes on a return to his native place after an absence of many years, "There was the little hill where I had begun my gardening works; and now came rushing into my mind all at once my pretty little garden, my little blue smock frock, my little nailed shoes, my pretty pigeons I used to feed out of my hands, the last kind words and tears of my gentle and tender-hearted and affectionate mother." If such a hard nature could feel thus—he, a self-contained man—one who, like Richard III., might have said "I am myself alone," no wonder many of us have a special tenderness for the flowers and fruits we knew, perhaps first knew, by some old-world local name.

I have given an instance in the Scotch colony in France of the same pursuit—viz., gardening, being followed for generations. But it may be said, "These men have done this simply for a living." Of course they have, but had they disliked the trade they might have taken to another. My argument is, that whether for profit or pleasure only, there is a fascination in horticulture which if taken up understandingly is, unlike many hobbies, life-enduring. I will cite an example from the biography of an excellent Wiltshire clergyman, a member of the noble house of Methuen. His son, the writer of the memoir, says, "For many years of my father's life at All Cannings the garden was to him a nullity. The flowers, to be sure, felt the fostering influence of our sweet eldest sister, the vegetables were safe in the hands of a village gardener; but the fruit trees were left to grow as Nature bid them. My father was quite happy with his books, busy with his pen, prolific of verses, and never forgetting for an hour the claims of his sacred calling. What room had he for a new pursuit? and what likelihood that he should add a passion for gardening to the other warm impulses of his character? The story is strange and yet true. A relative paid him a visit, and being very scientific in fruit trees, especially the Vine, which with us had been specially neglected, the tide turned. My father became hot upon his new hobby. All was put on a new footing. He read books, he ordered tools, and a gardener's bag for nails and shreds. And it was no passing fit that seized him. It seemed to grow upon him day by day. The rectory assumed a different air. The south side of the house was carpeted with Vines. He had his visitors out to see his well-covered walls; he loved to point out beauties and peculiarities among the bunches. He secured a large crop of splendid Grapes which people would not believe to have been grown out of doors. He became a member of the Wilts Horticultural Society, showed his fruit and won prizes. His love of gardening lasted without any abatement till old age came upon him, dimmed his eyesight, and made us tremble to see him upon a ladder." The good old man above referred to I knew, and saw buoyant and lively at above fourscore. How much happiness was his from his love of practical horticulture! It is only the old old story; Nature says, "Love me once and I will love you ever."

What special advice in this my fifteenth new year's homily—how time flies!—have I to give to gardeners? Happily there are no such things as strikes among the craft, therefore no general poverty or ruin as among the South Wales colliers. This year with troublous times, and scarce and dear times, before us I would say, Be content with such things as ye have. Go on quietly but surely improving yourselves. We all love what is old, and yours is the oldest profession; so do not disgrace it, but bring honour on it. Take, too, the advice which old Father Time gives to us all, remembering how swift-footed he is, and how short are man's days; so work manfully and fulfil your duty. Remember—try to remember—during the whole year the sober thoughtful frame of mind which you had at the year's beginning, and do not act during the whole year as you will be ashamed at the year's close. Be true to yourselves, and then you will be true to all.

With a little anecdote which will come to the hearts of *all* lovers of pets—and we have many among our readers—and I have done. After the taking the other day of the Afghan fort of Ali Musjid by our soldiers, "In one little room a Sepoy found three children covered over with rags. One of them, finding they were discovered, held up a small cage containing two partridges [quails more probably] to their captor, and offered it to him if he would but spare their lives. It is unnecessary to say that the children were carefully tended, and the little one was allowed to keep his pets." How human nature is alike all the world over when at its best! The child and his birds, the Sepoy, now a British soldier, with a true soldier's chivalry towards the weak, and many an English lady with her eyes swimming with tears as she reads the touching anecdote. Verily

"One touch of nature make the whole world kin."

To all readers of and writers in "our Journal," I, as chaplain, beg to wish you all "A Happy New Year."—WILTSHIRE RECTOR.

EXHIBITING ROSES.

IN perusing the report of the annual meeting of the National Rose Society in your columns of the 19th ult. I was very glad to find it had been decided to reduce the largest number of

blooms in the amateurs' classes from forty-eight to thirty-six. This, in my opinion, is quite a step in the right direction, and will tend materially to add to the number of competitors in that class, also to enhance the quality of the individual stands. Thirty-six varieties are quite sufficient for most amateurs to show, and many growers would be very much taxed and have to resort to inferior flowers to make up the last twelve to complete a forty-eight. I think we shall now hear less of the prizes being dead certainties for this or that exhibitor, who simply at present overpower their opponents by the numbers of Roses they grow. On the other hand, it will by no means lessen the advantages of the great grower, for however good a forty-eight may be produced it is very evident that a thirty-six can be made better.

I should be very glad to see the treble classes entirely done away with; they may be all very well to make a display of colour, but even in the best nurserymen's stands I never yet saw a treble stand but was to my mind a mere jumble and confusion; and if we are to have Roses shown in such numbers and where space is available I would suggest that the societies provide temporary stands and tubes, and that the blooms be arranged three of a sort across the stand; this, I fancy, would make a much more effective display, and would not entail so much labour on the exhibitor as the present tedious manner of arranging trebles.—W. NICHOL.

GRAPES AND PEACHES IN THE SAME HOUSE.

In reference to some remarks of "KITCHEN GARDENER" in a recent issue of this Journal, there is no doubt but that the great majority of gardeners prefer and would recommend the cultivation of only one kind of fruit in a house instead of the mixed system; yet it is abundantly proved by "KITCHEN GARDENER'S" description of a house in which Peaches and Grapes are successfully produced, as well as by other instances where to my knowledge the mixed system has been practised to a very considerable extent, so that there is no reason whatever why anyone may not have not only Peaches and Grapes but Figs as well in the same house.

About thirty-five years since I was employed in a garden where there was a large range of glass, every division of which was worked most successfully on the mixed system; so much so that I consider I have never seen a range of similar extent so productive of really good Pine Apples, Peaches, Grapes, and Strawberries, besides French Beans, &c. The owner was in the habit of giving some of the largest dinner parties of the season in London, and these parties were celebrated for their desserts both in quantity and quality.

It may perhaps interest some of your readers, if it does not instruct them, if I give a brief account of how the mixed system was arranged and worked in the range in question. Beginning at one end of the range there was a house with a Vine up each rafter. These Vines were trained to three wires about 8 inches apart running up under each rafter. In the body of the house there were Peach trees trained on a trellis-work which was nearly level and raised about 4 feet above the border. On the back wall were three standard-trained Peach trees, and in the front angle of the house there was a shelf for Strawberries. The Vines had their roots entirely in the outside, and the Peaches were confined to the inside border. I have seen splendid, large, well-coloured Black Hamburgh Grapes produced year after year in this house, and equally splendid Peaches, never missing a crop.

The next two divisions were pineries with the pit occupying the centre of the houses, with passages back and front, a front shelf for Strawberries, and another shelf for the same purpose near the top of the back wall, and several feet lower one for French Beans. The Vines of course were entirely in the outside border, and the fronts of the houses so arranged that the Vines could be turned outside for a time after they were ripe. At the beginning of the season the pits were filled with spent bark and the Vines were brought in. At the same time every available space—shelves and pits—were filled with Strawberries, Roses, &c., and when the heat was advanced French Beans. As soon as the Grapes on each rafter were thinned the temporary occupants of the pits were moved elsewhere and fruiting Pines took their place. These two houses were thoroughly successful with all their occupants, and I have seen as fine Muscat Grapes over the end passages where there were no Pines as ever I have seen before or since.

The next house was the centre one of the range, and was about 75 feet long, and to the best of my recollection 24 feet wide. The roof was supported in the middle with iron columns, up which the main stems of the Vines which clothed every rafter were trained. The roots of these Vines were entirely restricted to the inside border. Along the front of the house were standard Peach trees, the heads of which were trained flat like a large Chinese umbrella. On the back wall were standard-trained Peaches, and along the front of the house over the flue a shelf for bedding plants, &c. The whole floor of the house was used as a store for tender flower garden plants, chiefly Pelargoniums. This house was equally successful, and some of the grandest berries of Black Hamburgh Grapes I ever saw were grown in it; and I have seen them hanging in good condition in January and sometimes February notwithstanding the store of plants on the floor.

The house next to this large vinery, &c., was equal in size to both the pineries already noticed, and was used for, among other things, producing Grapes and Pines early in May. The Vines were entirely in an outside border, the pit in the centre of the house being filled up early in December with tan or bark and the Vines brought in from the outside; at the same time Roses were placed in the bark bed, and Strawberries on the shelves and kerbs. When the Grapes were thinned started Pines were introduced from other places and plunged in the bed, French Beans were grown on the kerbs and lower shelves of the back wall. This house was ultimately turned into a Muscat house, and I have seen Muscats in fine order in it at the middle of March. When Muscats and Hamburghs can thus be had in February and March what necessity is there for coarser late varieties till after those dates? The next and concluding division in the range was a Peach and Vine house arranged and managed exactly the same as the first division I have referred to, and was equally successful.

With all the experience and observation of the time that has elapsed since the above practice and arrangements were carried out, I am perfectly confident that I have never seen so much really good fruit produced in the same extent of glass as was produced in this range for ten months out of the twelve: nor do I consider it possible to have produced the same amount of Pines, Peaches, Strawberries, and Grapes, to say nothing of French Beans and Roses, by devoting one house exclusively to one sort of fruit. No doubt to work a range after this fashion requires careful and skilful management.

A word and hint to young gardeners about this range. The one man that worked it had no help except from one of the kitchen garden men during the heat of summer in the afternoon to carry water, for it all had to be carried, or at least barrowed. He had to be at home every Sunday without any help, nor did he ever get any help with the fires. Every sash in the range had to be untied, let down, drawn up, and tied when airing was necessary. In moving Pines he had help, but he thinned all the Grapes, tied all the Peaches and Vines, &c. The kitchen garden men carried in all the bark to the Pine pits, and they carried tons of it on their back up steep stairs, for the ground was deep behind the houses, and I have helped to do this in December with stinging frosts and the sweat dropping off at my nose like peas. Besides this range there were Pines, Cucumbers, Radishes, Carrots, Potatoes, &c., forced in the Melon ground—the breadth of the kitchen garden and more from this main range, all worked by the same man.—D. THOMSON, *Drumlanrig Gardens.*

ECHEVERIA RETUSA.

CONSIDERING the great decorative value of this easily-grown plant it is a little surprising that it is not as commonly grown as Primulas, Cinerarias, and Cyclamens. From all those plants it is totally distinct, yet in its own peculiar form of attractiveness it is equal in value to any of them. In a greenhouse at the present time, where all the plants named are flowering, those of Echeveria retusa, I think, command the lion's share of admiration. It was by reading of the merits of this plant in the Journal that led me to commence its cultivation. I purchased half a dozen plants last year, grew them on, and flowered them in 48-sized pots last winter, each plant yielding four to six stout flowering stems surmounted with elegant drooping, bright yet chaste, heads of flowers. After flowering the plants were shifted into larger pots, a very open and rough rich compost being used. They were kept on a shelf in the greenhouse until April, and were then plunged in cocoa-nut fibre in a cold frame. There they grow luxuriantly. Air was admitted freely according to the weather, and during the summer the lights were often

removed from the frame night and day. Early in the spring a few strong offsets were taken off—one or two from each plant: these are now flowering in 4 and 5-inch pots, and are very useful as marginal plants. The larger plants are in 7-inch pots, and are carrying from seven to ten heads of flowers each, and 15 inches high. The flowers commenced expanding early in the last month, and the plants will continue in fresh full beauty until the end of February. They associate admirably with other flowering plants and Ferns, and afford refreshing variety to a house that is greatly enjoyed at this period of the year when Christmas visitors are numerous and when flowers appear to be peculiarly enjoyed.

Echeveria retusa is a real amateur's plant, so easily is it cultivated and so naturally does it flower during the dull months of the year. It is equally an aristocratic plant, so distinct is it in character, and can easily hold its own, when well grown, in the ducal conservatory.—T. S.

THE PROPOSED CHRYSANTHEMUM TOURNAMENT.

MUCH good will, I think, result from the discussion that has recently been conducted in your pages. In the first place I think no one will again venture to secure a prize by unfair means, and I think greater unity will be produced amongst skilful and honest cultivators of the Chrysanthemum in both north and south. A trial of skill by growers in the metropolitan district and those of Liverpool and the north generally, as has been suggested in the Journal, is much to be desired; and as representative growers on both sides appear anxious for a fair contest I hope the proposition will be carried out in all earnest and with the utmost good feeling on both sides, the same as so happily exists at cricket, rifle, and other contests. There are, no doubt, excellent cultivators of the Chrysanthemum in Lancashire as well as around London, and neither district need fear entering the lists against the other. There is also plenty of time for making preparations for the event, and for determining the conditions under which it be held.

It appears to me essential that a complete understanding should exist as to the relative points of excellence that all cultivators ought to recognise in growing and exhibiting their blooms. I am sure the southern growers would not like to meet their Liverpool friends in the gardens of the Royal Horticultural Society except on terms of perfect equality, and it cannot fail to be mutually satisfactory to all competitors, and equally so to the judges, to have some recognised standard established for judging the blooms. This becomes the more necessary, since it appears the custom at Liverpool is to attach primary importance to size, while in London quality and general excellence are indispensable in the blooms.

As a suggestion for the consideration of those interested in the proposed tournament, I venture to submit as briefly as possible the qualities which I think constitute a good bloom. It must first possess symmetry—that is, excellence of form, all the parts of the flower being duly balanced. It must possess firmness—that is, density of petals, each petal possessing sufficient substance to retain it in the desired position. It must possess colour and freshness—that is, the higher colours should be as bright as possible, and the lighter flowers clear and pure. Now we come to size. On this point I would say that the larger a bloom is, provided it possesses all the above properties, the better; of course I mean size of bloom in relation to variety, but mere size alone should not swamp quality. For instance, a very large and loose bloom, with its consequent roughness, I should not deem equal to a bloom somewhat smaller yet solid, bright, and smooth.

In order to further simplify the matter I think it only fair to all in a contest of the nature indicated, that a list of varieties should be given, the blooms of which usually possess the properties enumerated; and from the list determined upon let the exhibitors make up their stands. I have no special desire that the varieties I name should constitute the list referred to. I submit the list as an example and subject to emendation—namely, Mrs. G. Rundle, Mrs. Dixon, Mr. G. Glenny (in this trio Nature comes as near perfection as possible), Lady Slade, White and Golden Beverleys, Empress of India, Golden Empress of India, Alfred Salter, Queen of England, Jardin des Plantes, Bronze Jardin des Plantes, Lord Derby, Princess of Wales, Venus, White Venus, Prince of Wales, John Salter, Golden Eagle, Barbara, Prince Alfred, Rev. J. Dix, Lady Hardinge, Mr. Brunlees, Hero of Stoke Newington, Princess of Teck, Cherub, Nil Desperandum, White Globe, Aurea Multiflora, Isabella Bett, Plenipo, Mrs. Haliburton, General Slade, and Mr. Turner's new varieties Mrs. Shipman and Rev. C. Boys. From the above selection of thirty-six varieties there is ample choice for selecting a stand of twenty-four blooms, and I think no judge would disqualify any of them. Doubtful varieties are excluded from the above list. By the word doubtful I mean where there is room for controversy on these points. In my capacity as judge at many shows it has frequently been my lot to hear such flowers as Fingal, Faust, Sparkler, Hereward, Baron Beust, and several others referred to by a shake of the head accompanied by the remark, "These would have been better left out."

As practical suggestions are requested I have contributed my mite towards the furtherance of a Chrysanthemum show in London of a really national character.—JOHN NEWTON, *Inner Temple Gardens, London, E.C.*

[Communications on the above subject from Mr. Bardney and Mr. Hinds will appear next week.]

KITCHEN GARDENING IN 1879.

IF kitchen garden crops generally prove as satisfactory in 1879 as they have done during 1878 there will be little occasion for complaint. In no particular case during the past year have I heard of vegetables being scarce, and complete failure of any important crop has not occurred. This is no doubt partly owing to a not very unfavourable season, but let us also hope it is a good deal due to improved knowledge of culture. This is the grand secret to success in all seasons, more especially in bad seasons.

At present I do not wish to describe the many practical details which are necessary for the production of good vegetable crops under adverse circumstances; but the value of being well acquainted with vegetable culture cannot be too much impressed on all your readers who have a kitchen to supply. Let all who have hitherto neglected it make this department a specialty during 1879.

I do not wish to have your first number of this year sullied by the assertion that young gardeners are much inferior at the present day to what they were thirty, forty, or fifty years ago, as so far as I can judge the very opposite is the case; yet I am obliged to admit that they, as a rule, are decidedly deficient in the kitchen gardening department of their calling. I am even of opinion that they are more so than they were half a century ago. Glass houses and specimen plant-growing were less fashionable then than now, and the kitchen garden was then regarded, as it still deserves to be, the most important of all a gardener's undertakings.

We have heard it stated on very high authority that the repute of Scotch gardeners is in great measure owing to their practical knowledge of vegetable culture. Young gardeners in Scotland are trained in a very different manner to those in England. Young men in Scotland have nearly always to work in the kitchen garden for three or four years at first—trenching, planting, pruning, nailing, and such like, while in England the students are mostly employed in "sponging plants" or spending weeks in staking and tying some exhibition plant into the most unnatural shape that can be devised. Young men aspiring to charges of their own are often those who have shunned the vegetable department most, and probably this may give others behind them the same impression of advancement; but let one who was once not entirely free from the same delusions state that no greater mistake could be made, as vegetables above all things are indispensable in every garden of any pretensions, and the finer and more abundant the produce, the more credit, the more satisfaction, the more peace are produced.

We take much delight in our Grapes, Pines, Peaches, and other fruits, in our florist and other flowers, in our pleasure grounds and their contents, but to nothing do we look forward to in the opening year with more pleasure than to be amongst the vegetables. They are interesting to grow, profitable, indispensable, and afford satisfaction to all concerned, and what more need anyone aspire to? It is quite certain that every gardener who has a house with from fifty to seventy persons in it to supply with vegetables every day for the greater part of the year will agree that the subject of vegetable culture is worthy of all that can be said about it, and that its importance cannot be overstated.

It will be well for those who think they can grow a batch of any kind of vegetable, as it were, by chance if they never find out their mistake; but it is not in having two or three hundred Cabbages ready for use that kitchen gardening consists, and very different is it to have a succession of every kind of vege-

table equal to meet the demand all the year round. Practice alone will secure this, and the time that is spent in gaining the requisite knowledge is time well invested.

One of our most interesting crops in the kitchen garden during 1878 was Peas. I have previously written approvingly of Culverwell's Telegraph, Carter's Challenger, and Veitch's Criterion. These are all new Peas, and my advice to every reader of the Journal who grows Peas is to grow these varieties as leading kinds in 1879. I see in Messrs. Carter's advertisement of vegetable novelties for 1879, a Pea is offered named Telephone, as being superior in quality to Culverwell's Telegraph. If this is really a fact, and I do not doubt it, the great Holborn seed firm deserve the hearty congratulations of every Pea-grower; and if everyone do as I have done—order one quart of it—they will be in possession of a treasure which they will not like to be without again. I would advise all who take an interest in the kitchen garden to try as many vegetable novelties as they can, as many of them turn out improvements on older kinds, and the pleasure of watching the development of anything new is always great. Numerous and great attractions are provided for us in the vegetable-growing department for the coming year, as, besides the usual order given to our seed firm to send us seeds of all new vegetables of merit, we have received several valuable new and rare packets of seeds from that eminent kitchen gardener, Mr. Gilbert of Burghley, and should anything occur therefrom that will either benefit the readers of the *Journal of Horticulture*, or advance vegetable culture generally, you may depend on hearing of it before the end of 1879.—A KITCHEN GARDENER.

BASKET FERNS.

IN the brief notice of Messrs. Veitch's nursery (in common with some other establishments) that appeared in the Journal last week, one of the most interesting departments of the nursery was entirely overlooked—namely, the Fern section of the business. The collection of Ferns in the nursery is a very extensive one, and many of them are arranged in a natural and picturesque manner on mounds and in nooks and dells; a vast number are also grown in pots, and many in wire baskets suspended from the roof of the house. Basket Ferns are so elegant, and impart such a pleasing appearance to a house, that it is a little surprising they are not more commonly seen in private gardens. It is only in large collections such as the one referred to that means are afforded for comparing the relative suitability of the different species for the purpose in question, and as only a comparative few can see the examples for themselves a few notes on this pleasing form of Fern culture may not be unacceptable to some of your readers.

One of the finest of all Ferns for growing in baskets large or small is undoubtedly Asplenium longissimum. The fronds, which are from 3 to 6 feet in length, arch in the most graceful manner, and a well furnished basket of this Fern is chastely ornamental. The fronds are thinly produced and droop round the basket with the greatest regularity, arresting the attention of all visitors. Asplenium divaricatum is also very elegant, but is not so decidedly pendant in character as the preceding.

Another extremely fine basket Fern is Goniophlebium subauriculatum. It is more dense in habit but little less pendant than Asplenium longissimum, and is one of the most easily grown and most effective Ferns in cultivation for tolerably large baskets.

Several of the Nephrolepes are admirably adapted for basket culture. N. ensifolia is very robust and requires a large basket to show to advantage. N. exaltata is a well-known ornamental species, admirably adapted for the same mode of culture. N. pectinata is dwarfer and more dense in character, and for a basket of medium size is highly suitable. Its fronds are not particularly pendant, yet they arch sufficiently to be appropriate to this mode of culture. N. pluma is quite one of the most graceful of all Ferns for baskets. The fronds fall down in the most elegant manner, and their light green appearance is highly refreshing. This species is deciduous, the old fronds decaying in the winter, but new growths are produced with great rapidity in the spring. The dwarf and quaint N. Duffii is seen to advantage when well grown in a basket; but to form a striking mass several plants should be arranged together, this species being of somewhat slow growth. Much more free, indeed very free and fine, is N. davallioides furcans, which is admirably adapted for a medium-sized basket.

Nothochlæna trichomanoides and N. sinuata are chaste, slender, and very elegant basket Ferns; and equally so are Adiantum assimile, the fronds protruding through the wires forming globes of green: and Davallia elegans is quite one of the most charming of its genus for this mode of ornamentation; it is suitable for small baskets. The larger and very useful D. Mooreana being equally adapted to baskets of larger size. Adiantum Edgeworthii is a basket Fern of great elegance. The slender fronds are distinctly pendant, and are rendered additionally attractive by producing young plants in profusion. For rather small baskets it is one of the most desirable. A. linulatum is also a distinct and graceful companion.

The new Fern Microlepia hirta cristata is proving one of the finest of basket Ferns, both the form of its fronds and its peculiar soft green colour rendering it a deserved favourite. Most of the Ferns named are also well adapted for pot culture, but in no position are they seen to greater advantage than when suspended from the roof of the fernery, cool stove, or intermediate house, or in the conservatory during the summer months. In the winter they flourish in a night temperature of 45° to 50°.

For cooler houses Woodwardia radicans cristata and W. orientalis make admirable basket Ferns of almost any size required; and for smaller baskets the dark green and elegant Polystichum mucronatum is equally suitable. A Fern with more massive fronds, yet elegantly cut pinnæ, which is excellently adapted for the centre of a basket, is Balantium culcitum. This Fern is never seen to such great advantage as when viewed from beneath, "against the light," and for the purpose named it is in great demand.

Wire baskets of various sizes are cheaply obtained, and only require a good lining of moss and suitable soil to grow Ferns to perfection; this, however, can only be done when the necessary requisites of shade and moisture are provided—given these, the plants flourish and form elegant ornaments for various decorative purposes.—A CHRISTMAS VISITOR.

NOTES AND GLEANINGS.

IT is our painful duty to announce the SUDDEN DEATH OF MR. JOSEPH DALE, who was for upwards of thirty-five years gardener to the Honourable Society of the Middle Temple, London. On the day preceding his death Mr. Dale was discharging his duties in the gardens, and returned home apparently in his usual health. He resided in the neighbourhood of Leyton, where he died on Tuesday last, the 31st ult. We are not in possession of any particulars relating to the melancholy event which has deprived Chrysanthemum growers, and many others, of a sincere friend and society of an honest man. The esteem in which Mr. Dale was held was exemplified in a remarkable manner on the 2nd of February last, when upwards of a hundred friends assembled to do him honour on the occasion of the presentation to him of a timepiece, which contained the following inscription:—"Presented to Joseph Dale, F.R.H.S., thirty-five years gardener to the Hon. Society of the Middle Temple, with a purse of fifty guineas, by friends who esteem his worth and appreciate his labours in the cultivation of the Chrysanthemum." Mr. Dale's reply on that occasion was characteristic of the man. It was in substance that he had simply endeavoured to do his duty to his employers, and also had the pleasure of having given the best aid in his power both to societies and individuals in extending the culture of the Chrysanthemum as a city and suburban flower. He had been complimented by H.R.H. the Prince of Wales, but a greater honour even than that he esteemed the tribute paid to him by his friends and fellow workers. Many readers will join us in regretting the death of this estimable man, and wide-spread sympathy will be evoked towards his sorrowing family.

—— OF the LONGEVITY OF GARDENERS some idea may be formed by a reference to the Obituary in Hogg's "Gardener's Year-Book" for 1879, just published. There are twenty-one deaths recorded, nine of which were over "the allotted span." The lowest was seventy-eight and the highest ninety-three. The aggregate of the nine lives amounted to 766 years, being an average of eighty-five.

—— A CORRESPONDENT informs us that the stove at Croxteth Hall, Liverpool (the seat of Earl Sefton) is now looking very gay with POINSETTIAS. The plants vary in height from 1 foot 6 inches to 3 feet 6 inches, and are well clothed with foliage. They are in 4 to 6-inch pots, and were mostly all propagated from cuttings last May, and through the summer grown in cool frames until they commenced showing their floral bracts. They were removed to the stove with a temperature of 65° to unfold their brilliant heads of scarlet, some of which measure 20 inches across, and very few under 16 inches; they are extra

Cucumbers, arranging house for, 35; cankering, 260; culture, 348, 386; Carter's Model, 394; disease of fruits, 129; forcing, 181; forming heating chamber in house, 182; heating house, 105, 163; making house, 331; management, 108, 141, 259, 312, 365, 427; raising plants of, 70; roots diseased, 35; spring, 302; winter treatment of, 15
Cumberland weather, 213
Cuphea lanceolata, 328
Currants—buds and birds, 240; renovating bushes of Black, 105; summer pruning, 266, 331
Cut flowers, moisture for, 193
Cryptomeria elegans, 325
Crystal Palace, appointment of Mr. Head; 441; Bird Show 166, 186; Flower Show, 409
Cycas revoluta, culture of, 202
Cyclamens after flowering, 260; culture of, 198; hardy species of, 447; planting out, 191; at Reading, 32; sweet-scented, 210
Cydonia sinensis, 361
Cypress, Pryal's Golden, 216
Cypripedium Lawrencianum, 441; C. Sedeni, 16; C. spectabile, 466

DAHLIA PROPAGATION, 220
Dairies, regulation of, 264; American products, 127
Dais cotinifolia, 434
Dalechampia Roezliana rosea, 213
Dale, Mr., death of, 5
Dandelions, destroying, 466
Dangstein, a last visit to, 455
Datura Stramonium, 124
Day Lily, yellow, 453
Decorations for rooms, 94
Delphinium formosum, 453
Dendrobium Cambridgeanum, 314; culture of D. nobile, 71
Deutzias after flowering, 348; D. crenata flore-pleno, 117
Dictamnus Fraxinella, 453
Dielytra eximia, 356
Difficulties overcome, 75, 93
Digging and trenching, cost of, 278; notes on, 195; time for, 179
Dinner-table decoration, 59
Dionæa muscipula culture, 428
Dioscorea vittata, 204
Diplacus grandiflora culture, 485
Dipteracanthus affinis, 460; D. caulescens, 460; D. Herbstii, 459; D. spectabilis, 460
Disbudding, 329; rationale of, 454
Dodecatheon Meadia, 355
Dorking chickens, 430; colour and selection of chickens, 449; for exhibition, 20; modern, 55; Silver-Grey, 167
Double Dropwort, 454
Double White Campion, 454
Droseras, species and culture of, 425
Ducklings, management of, 430

EAGLES, Scotch, at Somerleyton, 57
Echeveria retusa, 3; culture of, 175
Edging tiles, 216, 287; preserving from frost, 28, 102; for garden, 47
Eggs—fertility of, 92, 148; keeping, 57, 74; preserving, 282, 333; shell-less, 92, 460
Elæagnus reflexa, 254
Employers' difficulties, 283, 346
Endive, culture of, 437
Epacrises, raising from seed, 162
Eranthemum pulchellum planted out in Switzerland, 155
Ericas—culture of E. hyemalis, 24; E. gracilis after flowering, 182; raising from seed, 167
Erythrina Crista-galli, 14
Escallonia floribunda, 275
Essex (South) Flower Show, 462
Eucalyptus in Australia and England, 436; E. globulus, 404, 462; destruction of E. globulus by frost, 428, 478
Eucharis amazonica, 143
Euchlæna luxurians, 346; as fodder grass, 391
Euonymuses for walls, 455
Eupatorium Weinmannianum, culture of, 98
Euphorbia Lathyris, 117
Eutaxia myrtifolia, 325
Evergreens, pruning, 313
Ewes, management of breeding, 220
Exeter Botanical Society, 276
Exeter Flower Show, 438
Exhibition guide, 42, 136, 153, 236
Exhibitors, classification of, 485

FAT FOR MANURE, 220
Fences for parks and meadows, 35
Ferns, British, 260; climbing, 357; Cornish, 50; culture of in frame, 260; culture for rooms, 313; for baskets, 5; for unheated fernery, 124; for vinery, 88; for window case, 296; hardiness of greenhouse, 173; in a case, 330; management of, 296; repotting, 50, 161; uses of, 213
Fertilisers, relative value of, 413
Ficus elastica, leaves rooting, 344; management of, 278; propagating, 359
Fig house routine, 256
Figs—culture, 347, 385; falling, 330; forcing, 34, 141, 295; forcing for early crops, 70; in pots, 181, 218; Osborn's Prolific, 10; stopping growth of, 104; thinning fruit, 464
Filberts, culture of, 16
Firs (Scotch), distance for planting, 143
Flower beds, arrangement of, 105; mixed, 331; summer arrangements, 292
Flower border arrangement, 296, 331
Flower farming, 426
Flower garden, notes on, 465; routine of, 396
Flower missions, 236
"Flowers and Ferns of United States," review of, 291
Flowers, arranging in beds, 162; in Ireland, 437; in winter, 466; notes on cut, 189
Fontainebleau Gardens, 197
Foot, gardener's, damage by, 28
Forget-me-nots for forcing, 375
Fowls—age for laying, 74; drooping and dying, 74, 128; eating egg-shells, 188; eating feathers, 74; food for, 318; for market purposes, 148; for winter, 58; history of domestic, 222; plumage soiled, 354; varieties for keeping, 74
Franciscea violacea grandiflora, 343
Fritillaria Karelini, 294
Frost—at Bristol, 47; Mr. Beaton's prediction for 1856, 88; in Buckinghamshire, 6; consequences, 304, 322; at Drumlanrig, 6, 175; in Durham, 81; duration of, 99; at Easingwold, 175; footprints of, 304; in Ireland, 47, 67, 121; in Lancashire, 65; in Northamptonshire, 134; in Scotland, 27; penetration of, 232; severe, 124; in South Wales, 79; in Surrey, 13, 27; in Wiltshire, 311; in Yorkshire, 6
Fruit and sparrows, 437; birds, destroying, 247, 290, and fruit buds, 122; blossom not setting, 423; culture extended, 311; culture of hardy fruit, 6; culture under glass simplified, 75; extent of culture in America, 117; hardy *versus* birds, 41, 116; judging, 170, 263; London central market finances, 156; moisture for gathered, 196; notes on growing, 301; preserving blossom from ants, 142; prospects, 272, 303, 320, 328, 423; in Bedfordshire, 455; at Chiswick, 358; in Dorset, 418; in Gloucestershire, 455; and in Lancashire, 418; protecting from birds, 245, 340; ripening, 409; syringing and ventilating, 76; thinning, 356
Fruit garden, notes on, 446
Fruit trees—evils of overcropping, 40; good mixtures for dressing, 121, 122; grafting, 272, 276; in pots, 123; planting, 238; prices in 17th century, 344; protecting, 254; pruning, 215, 238, 253, 260; spring planting, 69
Fuchsias, 246, 313; F. aurea superba, 117; F. Earl of Beaconsfield, 278; repotting, 33; F. thymifolia, 441
Fuel, trials of, 150
Fulham Nursery, spring flowers at, 232
Fumigating, 247, 289, 304, 341, 395
Funkias, propagating, 201

GAILLARDIA GRANDIFLORA, 453
Garden, cropping, 228; erecting walls, 466; new mode of painting structures, 102; notes from my in 1878, 97, 183, 208, 248, 374; and in 1879, 480; preparing kitchen for crops, 130; visit to at Monkton Wyld, 40; vitality of vermin, 136; work in kitchen, 202
Gardeners, duties of head, 163; foot, 65; longevity of, 5; old colony of, 2; young, 44; complaints and difficulties of young, 102, 111, 139, 153, 176, 199, 227, 289
Gardenias, culture of, 446
Gardening, advance of, 1; kitchen in 1879, 4; hints on landscape, 226; writers on, 129
Gastroloblum villosum, 408
Geese, management of, 351; Toulouse for exhibition, 20
Genista precox, 435
Gentiana acaulis, 355; G. Andrewsii, 381
Gentianella seed failing, 387
Geraniums, compost for, 142; for bedding, 142; in pots, 428; leaves browned, 220; leaves spotted, 314; Princess Alexandra for bedding, 80; variegated, 142
Geum coccineum fl.-pl., 454
Gilbert's new Cabbage Broccoli, 12, 46, 63, 84
Gladioluses at Bishop Auckland, 254; culture of, 206; disease, 129
Glass, cleaning laps of, 124; for vineries, 174, 195, 198, 289; rough plate, 260
Glass structures, small *versus* large, 152
Glazing without putty, 142, 182
Glucose, what is? 371
Gnaphalium arenarium, 453
Goethea Mackoyana, 407
Golden-flowered Columbine, 454
Goldfussia isophylla for winter, 76
Gooseberry buds and birds, 210, 227, 240
Gooseberry, Cape, culture of, 182
Gossip, a bit of, 339
Grafting fruit trees, 272, 276
Grafting wax, application of, 135; making, 183
Grape Hyacinths, choice, 375
Grapes—berries setting, 71, 78; bunches curling, 428; culture without fire heat, 44; failure in March, 232; fertilisation, 232; Frontignans for pots, 22; Grapes and Peaches in same house, 3, 16; Grapes, Peaches, and Figs combined, 79; keeping in water, 104; keeping in water at Stanfield House, 80; notes on, 21, 118, 151; not keeping, 220; rusted, 368; scalded, 368; setting, method for, 100; under severe frost, 27; varieties of, 100; white for cool vinery, 447
Grass land, irrigation of, 124, 143, 163
Grass, new, for fodder, 391
Grasses, varieties of, 163
Greed, gardeners', 40
Greenhouse—climbing plants for, 485; erecting, 290; heating, 53, 124, 201, 220; routine, 286; site for, 387; Vines and plants in 87
"Greenhouse Favourites," review of, 441
Greenhouse plants, management of, 465; propagation and culture of, 239, 295; pruning and potting of, 427; treatment, 52
Greens, Curled, 213
Grubs infesting Strawberries, 52
Guano, 260; for Strawberries, 202; strength of for watering, 163; testing quality of, 156
Guide, exhibitors', wanted, 42
"Guide to Successful Chicken Breeding," review of, 389
Guinea fowls, 298

HABROTHAMNUS ELEGANS, 202
Hale Farm Nurseries, Tottenham, 309
Halesia tetraptera, 490
Hanover Horticultural Society, 6
Hardy flowers for May, 355
Harrison's Giant Musk, 285
Hatching and chickens, 185
Hawfinches, 321, 365, 384, 406
Hawk, destructiveness of tame, 138
Hawthorns, fasciated, 83
Hay prospects, 450
Heaths, potting and management of, 104
Heating, 320; apparatus defective, 17; estimate of piping for, 540
Hedge under trees, 390
Hellebores, culture of in pots, 124; nomenclature of, 79; notes on, 79, 153; at Tooting, 275
Helleborus odorus, 82; H. olympicus, culture of, 28
Hemerocallis flava, 453
Hens, hatching hatching ducklings, 168; food for, 127; egg-bound, 490
Hepaticas, 284
Herbaceous plants, 323, 343, 345, 374; dividing and culture of, 277; for June, 453; select, 349, 480
Herbs, scarcity and dearness of, 232; sowing and planting, 295
"Herefordshire Pomona," review of, 84
Hertfordshire Bee-keepers' Association, 57, 317, 333
Hesperis matronalis, fl-pl., 453
Hinds, Mr., testimonial to, 156
Hives, see *Bees*.
Holmes, Mr., death of, 47
Holloway Nurseries, 236; choice plants in, 310
Holly, Golden Queen, renovating, 10
Holstein cattle for dairies, 317
Home farm, retrospect, 17; work on, 36, 54, 72, 89, 107, 125, 144, 164, 184, 203, 221, 242, 262, 279, 297, 315, 332, 350, 370, 389, 410, 429, 449, 467, 486
Honey for cakes, 223. See *Bees*.
Hops for hotbeds, 106, 202
Horn-leaved Saxifrage, 356
Horseradish, planting, 218
Horses, farm—breeding and rearing of, 88, 106; shoeing of, 409, 429
Horticultural Club, dinner, 213; election of Committee, 65
Horticultural (Royal) Society—Annual Meeting, 114; Auricula Show, 305; Committee Meetings, 46, 150, 193, 270, 305, 359, 439, 478; Great Summer Show, 395; King of the Belgians' visit, 229; medals awarded, 423; Popular Show, 424; privileges of Fellows, 47; and the late Princess Alice, 84
Horticultural (Royal) Society of Ireland's Show, 378; Spring Show, 310
Horticultural tour in the west, 77, 98
Horticulture, fascination of, 2
Hospitals and Rose shows, 459
Hotbeds, making, 33
Hot-water apparatus, 324; arrangement of pipes for, 93; circulation of, 202
Hovea Celsii, 479
Humea elegans, 442
Hyacinths, after flowering, 259, 278; introduction of, 183; in the London nurseries, 233
Hybridising, 175

ICE STACK, FORMING, 17
Illicium religiosum hardy, 288
Incubators, 299
"Insects, Notes on Injurious," review of, 214
Insects, notes on for gardeners, 50
International Horticultural Exhibition, 455
Inula Hookeri, 328
Ireland, notes on flowers in, 437
Irises, 471; I. dichotoma, 407
Iris gardens at Hori Kiri, 211
Isle of Wight Poultry Show, 127
Isola Bella gardens, 252
Ivies, for pillars, 71
Ivy for walls, 447; stems, large, 156
Ixias, 323; causes of failure of, 129 culture, 178, 286

JAPAN, VISIT TO, 211
Japanese plants, 472
Japanese Wax Tree, 438
Jeffersonia, culture of, 51
Jersey Poultry Show, 54
Judging, standard required for, 42
June, twelve hardy herbaceous plants for, 453

KARL KOCH, DR., DEATH OF, 407
Kerry cattle, 487
Kew Gardens, 190; flowers at, 252, 286; notable plants at, 360; novelties at 76
Kidney Bean forcing, 180, 478
Kingston and Surbiton Horticultural Show, 481
"Kitchen Gardening Made Easy," review of, 347
Kitchen garden notes, 394, 437, 445

LAND, DIVISION OF PARK AND pasture, 35
Landscape gardening, hints on, 226
Langshans, 144; *versus* Cochins, 165
Lapageria not thriving, 143
Lardizabala biternata, 105
Lawns in ten days, 29; destroying weeds on, 156; manure for, 156; renovating, 106, 123, 124, 134, 218, 277
Leaves, obtaining impressions of, 485
Leeds Gardeners' Society, 64
Leghorns, properties of, 206
Leucophyton Brownii, 174
Light, influence of, 320
Lilies, Guernsey and Jacobæa, culture of, 182; hardy, 356
Liliums—auratum, 129, 132, 196; culture of L. auratum, 135; culture, 71, 323, 349; L. lancifolium, usefulness of, 183; seedling, 220
Lily of the Valley, forcing, 220; planting, 447; preparing for forcing, 259
Lily trade in Japan, 343
Lime for Vine borders, 349; uses of in cultivation, 56; value of for dusting trees, 135
Lime tree wounded, 220
Limewash, 361
Linaria dalmatica, 381
Lindsæa culture, 173
Linnæa borealis, 87
Linum trigynum, culture of, 101, 134, 212; value of for winter, 154
Liquid manures, 240; applying in winter, 176, 197; deodorising, 261; inodorous, 230, 240
Liverpool Horticultural Society's Show, 269
Loasa vulcanica, 328
Lobelias, propagating, 163; raising from cuttings, 240; raising from seed, 296
Lucerne culture, 388; in orchards, 413
Luminous plants, 87
Lychnis chalcedonica flore-pleno, 453; L. fulgens, 356; L. vespertina, 454
Lycopodium Selago, 463
Lygodium scandens, hardiness of, 135

MAHONIA FASCICULATA HYBRIDA, 401
Magnolia conspicua, 361; M. fuscata, 378
Management, hints for, 301, 338
Manchester Flower Show, 419; Spring Show, 342
Mangold Wurtzel sowing, 332
Manures—concentrated, 8; for fruit and vegetables, 94; guano, 260. See *Liquid Manures*.
Market gardens of London, old, 13, 439
Masdevallia tovarensis, 47
May, hardy flowers for, 355
Megaseas, 307

Melons—covering pipes in pit, 182; culture, 35, 141, 330, 367, 368, 408, 484; forcing, 181; in greenhouse, 105; management of, 259, 295; notes on, 446; pit for, 35; planting and training of, 103; raising plants of, 15; rough, 53; stopping, 105, 387
Memories, sunny, on gardens, 40
Mignonette culture, 365; in pots, 324; judging, 387
Milk, blowing cream off, 264
Mistletoe, culture of, 235
Mixed cultivation, 250, 309
Moisture for cut flowers, 196
Monnina xalapensis, 346
Monochætum Lemoineanum at Kew, 77
Moore, Dr. D., death of, 444
Mowing, 291
Mushrooms—covering beds of, 105; culture of, 140, 238, 311; failures, 75, 177; growing under difficulties, 132, 175, 209; improving house for, 75; preparation for, 15; watering, 105
Musk, Harrison's Giant, 285

NANKIN BANTAMS, 262
Narcissuses, 361, 381
Nasturtiums, sowing, 328
National Rose Society, 78, 113; schedule of, 42, 60
National Show of Auriculas, 305
Nectarines, culture, 386; forcing, 87, 161, 238, 295; for succession, 426; leaf blister, 482; management, 312; mulching and watering of, 464; thinning fruit, 312
Nepenthes, 451; culture of, 312
Nepeta spicata, 276
Nertera depressa culture, 368, 380
Newcastle Horticultural Show, 288
Nicholl, Mr., testimonial to, 65
Night soil, applying, 349
Nonnea lutea, 360
Nooks and corners, utilisation of, 111
Northumberland weather, 213
Notes on "D., *Deal's*," notes, 129, 173
Nursery and Seed Trade Association, objects of, 100
Nurseries of London, old, 13, 439
Nuts, Cobs, time for bearing, 88
Nymphæa alba, 465

ŒNOTHERA ANISOLOBA, 118; Œ. fruticosa, 120; Œ. speciosa, 120
Oilcake imported, 222
Onions, destroying grub of, 369
Oranges, culture of, 348; introduction of, 53; soil and temperature for, 88
Orange tree unfruitful, 220
Orchard house, amateur's, 121; management of, 70, 160, 239, 312, 367, 408; my, 272; relative dimensions of, 105; ventilating, 105
Orchid house, piping for, 142
Orchids—culture of cool, 22; flowering at Kew, 253; management of, 182, 277, 446; notes, 357, 367; potting, 104, 446; temperature for, 104
Ornithidium coccineum at Kew, 276
Oriental Poppy, 356
Overcropping fruit trees, evils of, 40
Owls as vermin destroyers, 431

PÆONIA TENUIFOLIA FL.-PL., 356
Palms for table decoration, 312; in Covent Garden Market, 71; notes on, 358
Pancratium maritimum culture, 216; P. speciosum culture, 330
Pansies for exhibition, 368; properties of, 428
Papaver orientale, 356
Paraffin as an insecticide, 7, 44, 47, 65, 96, 142, 252; for heating frames and stoves, 79; its use and abuse, 294, 344, 385, 388, 402; not injurious to seeds, 274
Parsley, early, 394; in pots for winter, 22
Passiflora cærulea in Kent, 23
Patshull Park poultry yard, 89, 125
Paulownia imperialis, 477
Peaches—buds dropping, 260; disbudding, 123; forcing, 52, 87, 161, 201, 238, 295; for succession, 426; fruit dropping, 202; injured by frost, 201; in unheated houses, 183, 320; management, 312, 426; pruning, 202; setting blossom, 15, 195; setting fruit, 228; thinning blossom, 123; thinning fruit, 312
Peach house, a cheap, 24, 62
Peach trees—culture, 386; leaf blister, 482; mildew on, 369; mulching, 464; unhealthy, 278; watering, 349, 464
Pears—experiments in ripening, 129, 173; for exposed situation, 53; growing, 251, 285; list of varieties, 77; merits of some, 207; notes on, 170; preventing insects on, 428; proposed election of, 60, 77, 101, 112, 132, 152, 174, 266; prospect of in Wiltshire, 426; ripening, 176; shrivelling, 142; what sorts to grow, 12, 59, 112. Beurré Diel not ripening, 202; Délices de Jodoigne, 270; Warden, 192
Peas—culture of field, 261; dwarf varieties of, 53; early, 238; for late crops, 366, 394; for succession, 171, 191, 237, 296; good varieties of, 418; hardiness of, 238; notes on, 61; protecting from mice, 44; sowing, 328
Pelargoniums—colours of some, 485; select Regal, 409; select varieties, 260, 368; notes on Show, 485; Zonal for autumn and winter, 173; exhibiting cut flowers of Zonal, 88; select varieties of Zonal, 124, 185, 162
Pencils, Wolff's garden, 121, 140, 1 9, 177
Perennials, hardy, for beds, 368, 388; raising from seed, 428
Peristeronic (National) Society's Show 56, 73
Petrea volubilis, 343
Petroleum an insecticide, 7
Phajus grandifolius, culture of, 278
Phlox divaricata, 441
Phylloxera, 479
Physalis edulis, culture of, 182
Picotees—171, 267, 465; culture, 215, 404; list of, 190
Pietermaritzburg, 213
Pigeons—hints for young amateurs: Pouters, 450
Pillar plants, 326
Pine Apples—culture, 329, 366, 484; management of, 52, 104, 161; potting, 259; starting suckers, 161; temperature, 259, 446
Pink, common white for forcing, 226
Pipes, hot-water, stopping leakage in, 53
Piping for heating required, 349
Plant houses, shading, 415
Plants at Copt Hall, 364; for conservatory, 183; for flowering in autumn, 260; for flowering in September, 143; for shady border, 183; for stove and greenhouse, 200; for window boxes, 368; raising subtropical from seed, 123; repotting stove, 87; resting period of, 32
Pleiones, culture of, 278
Plymouth Flower Show, 422
Poinsettias at Croxteth Park, 5; notes on, 170
Polyanthus, double variegated, 344
Poppy, Oriental, 356
Posoqueria longiflora, 479
Posts, preserving, 35
Potatoes—American crop, 223; fertilisers for, 314; for field culture, 87; imports of, 56; late kinds, 229; Murray's machine for planting, 316; planting, 260; planting early varieties, 160; Scotch Champion, 285; Suttons' Magnum Bonum, 43, 64, 80; varieties for succession, 162
Potatoes—"How to Grow and Show Them," review of, 268; "How to Grow Potatoes with Success for Exhibition," review of, 268
Poultry Club, 333; officers of, 243
Poultry—experiences, 107, 126, 145, 185, 351; farming, 468; foods, 487; for table use, 222; hints on, 431; in 1878, 37; late entries at shows, 109, 164; past, present, and future, 18; at Patshull Park, 89; results of keeping, 107; rules for keeping, 204; scientific mating of, 242, 298; shows in coming season, 411
Press for drying plants, 201
Primroses, sowing seed of, 260; P. Scott Wilson, 135, 162
Primulas—abnormal flower of, 47; culture of P. sinensis, 137; damping, 16; P. denticulata var. purpurea, 272; at Perry Hill, 232; at Reading, 32; P. rosea, 286; sowing Japanese, 183; sowing seed of, 183
Progagating frame, Rippingille's, 325
Propagating, notes on, 249
Protectors, glass, value of for raising seedlings, 150
Pyrus japonica as a Pear stock, 135

QUETTAH, CULTURE AT, 175

RABBITS, FATTENING, 165; in New Zealand, 450; points of Belgian Hare, 318
Ranunculus aconitifolius fl.-pl., 356
Ranunculuses, new, 286; at Tottenham, 361; tubers, 485
Raspberries, autumn, 220; canes killed, 325; pruning of, 296; wire trellises for, 311; on wire trellis, 341
Reading Flower Show, 405
Reading Pigeon, &c., Show, 90
Red spider, clean water *v.* sulphur, 7; Rhododendrons at Coombe Wood, 475; and at Duneevan, 474; forcing of, 53; R. dauricum, 252; Multiflorum, 272; Princess Alice, 273; Prince Camille de Rohan, 232; and Veitchianum, 235
Richardias, culture of, 240; R. æthiopica culture, 376, 416
Richmond Horticultural Society's schedule, 27
Rockwork, stone for, 71
Roof trailers, 248
Room decorations, 94
"Rose Annual" for 1878-79, review at Mr. W. Paul's, 49
"Rosarian's Year Book," review of, 66, 99
Rose garden at Mentmore, 81
Rose hedges at Valentines, 48
Roses—ants attacking, 447; box for twenty-four blooms, 485; boxes for exhibition, 387; Briar cuttings, 44; Briar *v.* Manetti, 26, 63, 137; century of in France, 435; classification at National Show, 24; climbing, 106; cut blooms from Cornwall, 310; cuttings striking, 201; dark varieties, 313; dwarfs *v.* standards, 209; effect of frost in Lincolnshire, 304; and in Yorkshire, 130; effect of season on, 227, 250, 253; exhibiting, 2, 273, 387; for north and east wall, 142; fragrant, 227; at Hereford, 323; house for, 260; in 1860 and 1878, 416; in France, 357; in the midlands, 302; in the north, 266; in pots, 257; jottings, 321; judging, 133; Manetti *v.* Briar, 26, 63, 137; manure for, 349; names *v.* numbers for, 150, 234; notes on, 285; old and new, 95, 131; our grandfathers', 479; planting, 35; for planting under glass, 142; pruning, 218, 250, 260, 321; red for greenhouse, 183; relative hardiness, 320; reports, 253, 322, 375; scented, 157; scentless blooms, 133, 172, 195; shade for Tea, 249; season prospects, 474; show and garden, 228; show prospects, 454; standards *v.* dwarfs, 209; stocks for, 137, 152; treatment under glass, 326; unhealthy, 485; varieties for forcing, 34, 35; varieties synonymous, 67; voice from Wales, 32. *Teas*—for bouquets, 106; forcing of, 142; and Noisette, notes on, 23; in Peach house, 437; and in pots, 240, 447; varieties of for winter, 53; at Waltham Cross, 456; Baronne Prévost, 228; Cheshunt Hybrid, hardiness of, 195; Gloire de Dijon, 44; La France, 344; Mabel Morrison, 385; Maréchal Niel, 278; cankering, 12; for market, 459; a Noisette, 289, 326; not expanding, 447
Rose shows and hospitals, 459
Royal Caledonian Horticultural Society's Spring Show, 274
Royal Western Horticultural Show, 422
Rudgea macrophylla, 325

SAINTFOIN, CULTURE OF, 297
Salvia Heerii, culture of, 112
Sanchezia nobilis, culture of, 260
Sawbridgeworth in May, 433
Saxifrages—cæspitosa, 463; S. ceratophylla, 356; S. oppositifolia, 463; in Kew Gardens, 213; species for forcing, 308
Scale, destroying on trees, 142, 143
Scarborough Poultry Show, 108
Schizanthus culture, 377
Schizostylis, culture of, 183
Scorching of foliage, 195
Scottish Horticultural Association, 200
Scottish Seed Trade Association, 64
Scrophularia marilandica, 447
Seakale culture, 387; forcing, 180; planting crowns of, 162; planting roots of, 105; thinning crowns, 105
Season's effects, 477
Seaweed, ashes of, for Vines, 296
Seeds—early ordering of, 30; duration of vitality of, 9, 43; germination of old, 63; how to test the germinating power of old, 16; importance of sowing thinly under glass, 142, 149; new for sowing, 63; new and old mixed, 117; old, 16; protecting from birds, 375, 418; raising, 330; selection of vegetable, 33; sowing, 190; sowing kitchen garden, 295; vitality of frozen, 162
Seed trade, note on increase of, 156
Selaginella denticulata, 380; for carpet beds, 162
Shaddock, 253
Shading with Bamboo, 292; plant houses, 415
Sheep—feeding and fatting, 314, 331, 349, 369; management of Down breeds 53, 71; and of Long-woolled ewes, 220, 241; mortality among, 55
Sheffield Gardeners' Society, 231
Shrewsbury Show, disqualification at, 109
Shropshire Horticultural Society's finances, 155
Shrubbery ornaments, 401
Shrubs for seacoast, 117; hardy flowering, 348; pruning, 209
"Sitting Hen," review of book, 389
Skimmia japonica and birds, 252, 287
Slugs, vitality of, 213
Snails in 1878, 251
Snowdrop Tree, 480
Snow, great fall of in London, 156; in Yorkshire, 27
Soil—difficulties, 169, 197, 208, 234, 321; draining, 234; for potting, 448
Solanum Dulcamara, 142; S. jasminoides, 345
South Hill, 379
Southport Flower Show, 237
Sowing seeds, 190
Sparrows, 483; in gardens, 437
Spiders, 290; and plants, 347
Spinach, spring, 344
Spiræa japonica after flowering, 348; S. Filipendula fl.-pl., 45; S. prunifolia flore-pleno, 401
Spring, arrival of, 194
Spring bedding, 234
Spring flowers in Ireland, 437; at Tottenham, 309
Stables, drainings of, 124; waste, 168
Staphylea colchica, 66
Stems of trees, cleansing, 213
Stephanotis floribunda a roof plant, 253; culture of, 313; not flowering, 182, 348
St. Helena, prices of fruit, &c., at, 87
Stocks, for Apples, trial of at Chiswick 358; for Roses, 63
Stone-fruit seed germination, 175
Stopping, rationale of, 454
Stove plants, 348; propagation and culture of, 220, 239, 259, 312, 446; temperature for, 260
Stoves, paraffin, for heating purposes, 26; Syers's, 196
Strawberries—forcing, 304, 464, 473; preparing for forcing, 484; varieties for forcing, 393; is it a fruit? 465; in pots, 96, 141, 201, 367, 427; mildew on, 314; select varieties, 277, 436; Sir Joseph Paxton, 436; spring, 215, 249
Streptocarpus Saundersii, 459
Suburban gardening, 33, 69, 121, 180 217, 257, 328, 365, 445
Suburban villa farming, 486
Sulphate of ammonia, application of 240
Sulphur *versus* red spider, 25
Summer, waiting for, 339, 343; probably hot, 379
Sundews, culture of, 425
Sunny memories, 40
Sunshine, absence of, 151, 156
Supers, see *Bees*.
Sussex weather, 251
Sutherland, Mr., presentation to, 6
Swansea Flower Show, 291
Swine, management of, 38
Syringing, efficacy of, 7

TABERNÆMONTANA CORONARIA culture, 220; T. cymosa, 423
Table plants, culture of, 312; select list of, 314
Taesonia, pruning, 183; T. Van-Volxemi seeding, 330
Tares, cultivation of, 279
Teosinte as fodder, 391
"Tea Roses, and How to Grow Them," review of, 441
Thalictrum aquilegifolium, 453
Thermometer, fixing, 163; variations of, 41, 68
Thorns, fasciated, 117
Tiles, circular stepping, 240; edging, 28, 47, 102, 216, 287, 341; Staffordshire for Rose beds, 195
Tillery, death of Mr. W., 360
Tobacco water, 485
Todea superba, treatment of, 183
Tomatoes—culture, 218, 365; early, 394; stopping, 387, 448; under Vines, 374, 418, 443
Tooting Nurseries, sale of plants at 64; a visit to, 275, 294
Topics, current, 195
"Town and Window Gardening," review of, 438
Trees, composition for dressing, 57, 163; loftiest, 344; measuring heights of, 192; planting on slopes, 226; protection of wall, 134
Trenching ground, utility of, 103
Trollius asiaticus, 355
Tulipa triphylla, 286
Tulips, a plea for, 158
Turkeys, 316, 332; hens as foster-mothers, 280
Turnip, Mousetail, 202

UPLANDS GARDENS, 340

VALERIANA PHU, 348
Vale Royal, 342
"Vegetables, and How to Grow Them," review of, 347
Vegetables dried, 194; effect of frost on, 41; forcing, 15, 69, 103, 140; growing in London, 278; notes on, 8; scarcity of, 231; sowing early, 122
Veitch's Nursery, Royal visit to, 231
Verbenas, raising from seed, 162
Vermin, vitality of garden, 150
Veronica Hulkel, 441; V. longifolia var. subsessilis, 294
Villa gardening, notes on, 33, 69, 121 180, 217, 257, 328, 365, 445
Villanova chrysanthemoides, 381
Villarsia capitata, 381
Vincas, culture of, 312
Vinery, temperature of early, 220

are clean water and fresh air, supplemented by watchfulness and care.—EDWARD LUCKHURST.

NOTES ON VEGETABLES.

MR. TAYLOR, giving his experience under the above heading, remarks on the fickleness of the Cauliflower crop this season. Both the summer and autumn crops have been far from satisfactory in this neighbourhood. The growth of the former was much weaker than usual; some headed prematurely, and many were completely spoilt by caterpillars. Sutton's King of the Cauliflowers has given a fair succession of moderate-sized heads, and we still have a few left. Veitch's Autumn Giant sown in heat early in February and in the open ground in March and April has not done so well as usual, the three crops turning in almost simultaneously. The growth was very uneven, and but few really fine heads were produced. This I attribute to the very hot and dry summer experienced, but hardly know how to account for the failure of early varieties.

The Walcheren and Veitch's Autumn Broccoli are now very useful. The latter is an excellent variety, having the appearance of being a cross between Snow's Broccoli and Veitch's Cauliflower. Last season Snow's made an excellent succession to Veitch's, followed by Osborn's Winter White. The latter is a good useful variety, very dwarf and hardy. Veitch's Spring White and Knight's Protecting were next fit for use. Both are good. The only fault to be found with the latter old variety is its extreme legginess. Cooling's Matchless proved very disappointing; not so, however, the Leamington, which gave us a good and prolonged crop. Cattell's Eclipse carried us on till the Cauliflowers were in. This season, in addition to this good old late variety, we are trying the Dalmeny May, Sutton's Late Queen, and Model.

The Celery crop was very much disfigured by the maggot, but the crop is still a good one, and there is every appearance of its keeping well. The best is on ground that was trenched for Onions two seasons back, followed by summer and autumn-sown Cabbage. The Celery plants were transferred to the trenches direct from the seed bed, and with but little subsequent attention have made excellent growth. This crop I believe derived greater benefit from the trenching than either of the preceding. Major Clarke's and Leicester Red are equally good, but with us scarcely synonymous. Last season we had Major Clarke's good till the end of April. Mr. Pragnell, Sherborne Castle, exhibited remarkably good Williams' Matchless at Kensington on November 19th, and considers it quite distinct from the foregoing. The heads were wonderfully solid, and I hope to be able to give this variety a trial next season. Do not cultivators often earth-up the late Celery much too soon? If it does not affect its keeping properties it at all events exposes it to attacks of grubs, &c., for a much longer time, forming in fact a good harbour for these pests. Celeriac is frequently used here. It is easily grown, and helps to give variety at a time when vegetables are sometimes rather scarce.

Cabbage is never left to produce a second crop, the supply being kept up by young plants. We are now cutting from a bed of that excellent variety Carter's Heartwell. They are planted thickly a foot apart in lines 15 inches apart, and produce heads large enough for ordinary purposes. Early Ulm, Dwarf Curled, and Drumhead Savoys come into use as arranged, the former being a particularly good early variety.

Carrots cracked badly, the only exception being the Altrincham. The Nantes Horn is undoubtedly a good variety, so also is Sutton's Champion Horn. We have both very good on ground previously occupied by second early Potatoes, which will keep up the supply of young Carrots till those in frames are fit for use.

The Seville Longpod Bean was again a comparative failure, and will not again be grown unless for exhibition purposes. The Early Longpod was very early and prolific, and Sutton's Broad Windsor proved very good for late work.

The Canadian Wonder Kidney Bean will have to give way to the older, and in my opinion better variety, Negro Longpod; but for early and late work, and also for pot culture, Osborn's Forcing is the best. The quality of this variety is undoubtedly excellent, and by far the best.

The Carentan Leek is a good show variety (though scarcely so well shown this season as last), but is rather coarser grained, and for general purposes is inferior to the Musselburgh. We sowed Leeks in heat, and also in the trenches, where they were to remain, the latter being the best. Fine Leeks can be had by raising the plants in heat and transplanting.

My experience with Potatoes was given in a previous paper, and therefore will only state that Mona's Pride is still equal to any variety for flavour, the colour only being in fault, and that Schoolmaster has been in great demand for the dining-room. We had a good trial of Peas, but will reserve remarks for a future paper.

The Banbury and Sutton's Reading Onions were nearly equal in size; the latter, however, gives promise of being the best keeper. Onions grown in the fields in this district are not keeping well, many being sold at a cheap rate. For keeping we grow James's Keeping and the Brown Globe, which are left thick in the rows, moderate-sized bulbs keeping best. They ripened well, and I have no doubt of being able to keep them as usual.

Tomatoes were fairly good. Those planted and also plunged in large pots, with the intention of lifting and housing for late work in the open ground, were badly diseased, although those trained to a wall almost behind them were nearly or quite free from disease, and produced and ripened a good crop. The varieties were the same in both instances. The market growers lost their entire crops by disease. I never saw heavier or better crops before they were attacked, or so quick and very complete a collapse. With me the Acme Tomato did well; the fruit of good size and shape, but the colour (cornelian red), although very pretty, makes the variety unsaleable. Vick's Criterion is a remarkably prolific variety, but the fruit, of the same colour as the foregoing, is rather small and very liable to crack. For forcing in small pots it is the best we have tried, plants in 8-inch pots perfecting as many as two dozen fruit, which prove very useful, and can easily be had from April onwards. The Trophy and improved varieties of it are the most solid and best for ordinary work, and are the greatest favourites in the kitchen. The seed-growers cannot be too careful how they save Tomato seed. We have had several varieties from a packet presumably of Dwarf Orangefield, some of which were useless.

Early and late Turnips were and are very good, but the intermediate crops were good for soup only. We tried four early varieties, Sutton's Snowball being decidedly the best. It is also good for late work. American Red Stone has previously been used for late work, but Veitch's Red Globe will in future be substituted for it, the quality being particularly good. Chirk Castle Black Stone is good throughout the winter. We store this and Veitch's with the other culinary roots, and very useful they prove.

One variety of Cabbage Lettuce only is grown here (the Early Paris Market), and then only in the spring, in case there may be a break in the supply from the wintered Cos varieties and those sown in heat in the spring. I fail to understand why so many Cabbage Lettuces are grown; as compared with the Cos varieties they are very poor and flabby, very few indeed giving the preference to them. They are more tender, and also more liable to bolt than the Cos. All that is necessary is to keep up a succession of sowings of the latter throughout the summer, the last few sowings in extra quantities. The green or white Cos varieties if taken up and stored when dry in frames will keep crisp and good till Christmas, and the brown Cos much later. We have been using good green and brown Cos until now from the open ground, both having withstood 8° of frost, but the present (December 13th) more severe weather will spoil what there are left. The brown Cos will not sell in the markets, the colour not appearing to suit the retailers; it is, however, almost indispensable in private gardens. Sutton's Superb (a good strain of white Cos) and Scott's Superb (a good strain of green Cos) are the best tried here for summer and autumn work, and Hick's Hardy Green Cos and the black-seeded brown Cos for sowing in the autumn for spring use. It is a good practice to sow a pinch of brown Cos with the other varieties during the spring and summer, as it is later turning in and less liable to bolt, thus keeping up the supply should there be a break, which from various causes frequently happens between the other, and for the season certainly better varieties.

Moss-curled Endive is sown for the early supply. It is used principally with Lettuce to improve the colour of the salad. It is a very tender variety, and is succeeded by the Green Curled, and for late winter and spring use Veitch's Improved Batavian is extremely useful.

Of Cucumbers we tried Tender-and-True, Telegraph, and Sutton's Duke of Connaught. The former grown in a strong heat was very fine; grown, however, in a moderate heat with Telegraph it was inferior to that good old variety, and neither

equalled the Duke of Connaught for growing in nearly or quite cold frames. This variety kept up a fair supply long after the two former had failed. We had useful fruit from a cold frame till late in October. Osmaston Manor is highly recommended by some good growers, and next season I hope to be able to give it a trial. Wood's Frame Radish is preferred for early work either in frames or the open ground, and the French Breakfast is a good variety for the same purpose.

Our garden is very flat, the soil a rich clayey loam resting on a rather cold sandy clay subsoil. During June and July there is seldom any rainfall; thunderstorms are attracted from us in two directions, and we often have the mortification of seeing them breaking to the right and left. Unfortunately our soil cracks badly, the effects of which can easily be imagined. This difficulty, however, I hope in time to be able to surmount, at the same time should be glad of the advice of more experienced men on the subject.—W. IGGULDEN, *Orsett Hall.*

NOTES ON CONIFERS AT HARBORNE HOUSE.

ALTHOUGH the merits of Conifers as ornamental shrubs are established beyond doubt, a few practical observations relating to them are yet welcomely read by your readers. The different characters belonging to these noble shrubs are seen to more or less advantage, and their value more appreciated if the locality in which the specimens are growing is devoid of those natural surroundings of fine specimens of Oak, Elm, Horse Chestnut, Beech, &c., which adorn the landscape in a district where they thrive; and yet such trees afford valuable shelter to their more tender associates of which I am about to refer.

The locality from which my notes are taken is that low-lying district comprising the lower part of the Weald of Kent, with no natural shelter from the winds which sweep across the plain from the south coast; there Oaks grow in abundance and other trees of the usual kind, but what with the continual exposure and wet soil do not nearly approach the size they do in more favoured soils. The district abounds in woodland of a commoner appearance than in many places, therefore it is quite a relief to come upon a contrasting scene of well-grown Conifers. The soil for miles around is a retentive one—not exactly a clay, but nearly of that texture, and a liberal supply of water is easily found a few feet below the surface. The soil is of good depth, and there is such an absence of stone, that material for road-making has to be carted many miles.

About a mile and a half from the town of Tenterden in Kent is the seat of Henry Salter, Esq., situated on an eminence which commands a good view of the surrounding county. In the pleasure grounds are growing some magnificent specimens of the larger-growing Conifers, which for health and vigour are all that can be desired. Mr. Salter prides himself in them, and enjoys a chat about them. They were planted with great care about twenty years ago. The holes for the trees were dug out from 6 to 8 feet across, and 6 feet deep. The soil that was thrown out of them was allowed to lay for at least six months, and occasionally turned to give it an airing. In some of the holes water was found; these had a good layer of rubble placed at the bottom, but it was not generally the case. In the autumn when planting began the bottom of the holes were first broken up roughly, and then began the filling-up, breaking in the sides of the holes as the work went on. The middle of the hole only was filled about a foot higher than the surface, the trees were planted on this with the greatest regard to having every root laid out properly; fine soil was gradually worked among them and washed in with water, so as every root might be well embedded, the roots being buried to the depth of 6 inches. Staking was the next work which was done thoroughly. As the trees sank and grew fresh soil was added till all was used, taking care at each turn to break in the sides of the holes so that, as Mr. Salter wisely remarked, the roots might elongate without any obstruction. After the trees were thoroughly established a coating of rich manure and soil was placed over the roots as a mulching. During the first and second summers they had several copious waterings, and none of the shrubs were ever checked in their growth. I have given the above particulars as to planting, because as these plants coming from a nursery are often cramped at the root, require this extra care in order to insure success.

Wellingtonias are favourites at Harborne. Some of the trees are 55 or 60 feet high, and well proportioned and healthy. Those that are in a sheltered place are somewhat drawn. Pinus Pinsapo is a fine specimen, and with its stiff well-regulated growth stands the wind remarkably well. Pinus insignis, of which there are several fine examples, has grown luxuriantly, and the remarkable colour of the foliage exceeds any that I have before witnessed. A little judicious pruning of the straggling growth here and there two or three years ago would have made the specimens perfect in shape. Abies Douglasii is a fine tree 50 feet high and growing vigorously, but being planted at one corner of the grounds, where it is towering above many others, its leader is somewhat damaged, but will recover. Abies Morinda with its curious drooping habit is a very ornamental tree, not so much inclined to branch out as many others, it takes more the shape of the Spruce Fir. Cupressus macrocarpa is a very noble specimen, and is spreading over much ground. Cedrus Deodara is magnificent, and the Cedar of Lebanon is young, but promises to succeed well. Taxodium sempervirens is from 60 to 70 feet high and in full health. Pinus atlantica is the most ornamental tree in the grounds. I am surprised there is not more of this beautiful tree planted; it requires plenty of room to show it off well, as its branches extend a long distance. Araucaria imbricata was some time before it made a start, but during the last six or seven years it has grown well; it is about 25 feet high. Abies canadensis is growing so freely that its branches need careful pruning. Cupressus Lawsoniana is in superior condition. Cryptomeria japonica has not done so well, it is a transplanted tree and has lost its leader. I would not advise anyone to move a tree of this species too large, as it seldom moves well. Pinus austriaca was planted some years later, but they are all doing well; no wind affects this hardy Pine. Thujopsis borealis cannot be doing better. There are many other specimens about the grounds that have been added since the above were planted; these and the commoner trees, as Scotch Fir, Spruce, and Larch, all give signs of attaining great size.

Mr. Salter has adorned the outskirts of the park and wood with Spruce and Scotch Firs as well as the common Laurels. The Portugal Laurel does not thrive in all parts of the grounds; it grows to a fair size and then partly decays, while in other places it grows well; there is something in the soil that is unsuitable, because the position is the same. Phillyreas, Thuja aurea, Evergreen Oak, Box, and Holly all thrive admirably, which proves what I have often said, that a heavy soil so long as it is not clay will suit those evergreens and nearly all the Coniferæ tribe much better and with less care than a lighter soil, even if it is of the same depth. The specimens above noted have no moss or lichen of any sort growing upon them, and are as clear as possible, while a light soil often produces these parasites.

One of the most complete specimens of a Wellingtonia that has come under my notice is growing in the grounds at Ingleden House, the seat of Admiral Gordon, near Tenterden. It stands singly on the lawn, is about 55 feet high, and has not a branch of unsightly wood, every branch is in its right place. The stem 1 foot from the ground measures 8 feet in circumference; the diameter of its branches is 33 feet. This tree was planted eighteen years ago, and exactly in the same way as those at Harborne House. The soil, however, is nearly all clay; the tree is in robust health and in fine colour.

The pruning of Conifers in their early stages of growth appears to me to be a matter of special importance. This operation should be performed without disfiguring the plant, which is impossible when the pruning is too long deferred.—THOMAS RECORD.

THE NATIONAL CARNATION AND PICOTEE SHOW.—In my communication referred to by Mr. Dodwell on page 484 of last volume there were only two classes to which allusion was made—the open class and that for single blooms; in these there were five Judges. Will Mr. Dodwell be good enough to say how many of these ever grew a Carnation or Picotee in the south of England, and how far the statement, therefore, was incorrect that the Judges were northerners?—D., *Deal.*

SEEDS FOR SOWING.

I SHOULD like to know which are the most productive, old or new seeds? All gardeners know that some seeds—the Melon, for instance—are less rampant in growth and more productive in yield by being kept for two or more years. This opens a wide field for inquiry and investigation. What seeds ought to be used, as newly raised as they can be obtained? and what seeds are more productive by being matured a second year or more? I hope that some of your correspondents will give us the result of their experience. It is important, firstly on

account of the results, and secondly on the score of economy; for how many gardeners and amateurs have at this moment stocks of last year's seeds (1877) which they fear to use for seed in the coming spring of 1879? For myself I have Beet, Broccoli, Brussels Sprouts, Carrots, Kidney Beans, Lettuces, Onions, Parsley, Parsnip, Radishes, Tomatoes, Turnips, Scarlet Runners sufficient for next spring's sowing (1879); but dare I use them? Or which of them will it be most advantageous to use in preference to new seed? is a question which I should like to see discussed.—G. O. S.

OSBORN'S PROLIFIC FIG.

THE following, extracted from "The Gardener's Year-Book," will afford "M. D." the information he requires relative to this variety:—"Fruit roundish turbinate, tapering into a very long neck, some specimens measuring as much as 3¾ inches from the eye to the end of the stalk. Skin dark mahogany, gradually shading off to pale brown towards the neck, which

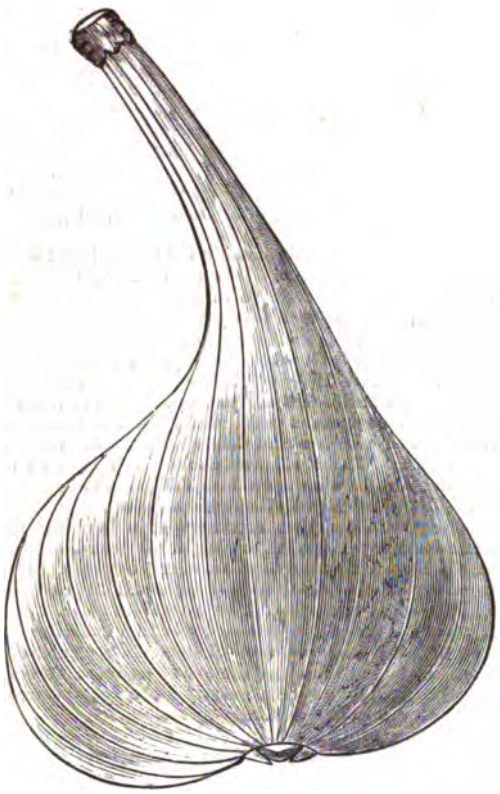


Fig. 1.—Osborn's Prolific Fig.

is bright pea-green. The body of the fruit is thickly dotted and speckled with grey or white dots and speckles. Flesh quite opaline without any trace of red, with a rich sugary juice and excellent flavour.

"This is a very valuable variety of the Fig, as it is not only an abundant bearer and is well adapted for pot culture, but it ripens well in a cool greenhouse. Like all Figs, however, it answers to better treatment; and the usual amount of heat will be accompanied by a proportionate increase of flavour. The fruit from which this description was taken was grown on the back wall of a cool greenhouse along with late Peaches, and even under these circumstances it was equal to some of the finest varieties grown in more favourable situations."

RENOVATING GOLDEN QUEEN HOLLY.

I HAVE a Golden Queen Holly (Ilex Aquifolium aurea speciosa) on my lawn about 20 feet high, the stem or bole measuring 4 feet in circumference at the base. Three years ago the tree became much out of health; the leaves were puny and pale in colour, many of them dropping when they should not, and the year's growth of the young shoots barely exceeding an inch in length. On due reflection I came to the conclusion that the tree was suffering from want of nourishment—was in fact starving. Accordingly I drew a circle of 20 feet, taking the bole of the tree for its centre, drove a sharp-pointed iron rod about as thick as one's finger 3 feet into the ground, filling up the hole thus made with rich pulverised manure. This was done in the winter. The following spring the growth was more vigorous, and the leaves larger and of a better colour. The third year's growth after this manuring is now on the tree, and I enclose samples of it to show that it is everything one could wish for. This has been brought about by two or three hours' work, and not costing as many shillings.—WILLIAM PAUL, *Waltham Cross.*

[We never saw the green richer nor the variegation brighter in the leaves of any Holly than those of the sprays referred to.—EDS.]

CARNATION DRESSING.

THOSE who have studied Nature in all her freaks have found that in nearly all cases she requires the assistance of art to render flowers more acceptable. There is a strict analogy in human nature. Even a child is not allowed to run wild, but the mother arranges all that she sees requisite so as to improve his appearance. So with plants and flowers. What an unsightly appearance a large plant would make if it were not for the numerous stakes by which it is supported to improve its appearance! Again, some superfluous branches require a pruning knife so as add to and improve the shape of the tree. What is this but dressing? and yet nothing is said respecting them. Flowers in their natural state require a practised eye to discern what is necessary to make them as near as possible perfection. There are but few florists that dress their own flowers, it is a nice art. Although I have been a grower of Carnations for nearly seventy years I never could manage to dress the flowers. The best dresser is Mr. Dodwell, from whom I received many hints, and his dressing was a great improvement upon that of Lancashire; the next best is Mr. Charles Turner.

For a long time I could not make out how certain flowers were much larger than my own. In watching some of the best hands I found that the first move was to apply the tweezers to the calyx, and to bend it nearly three-eighths of an inch down, this would make room for to increase the diameter of the flower; then the bloom was looked over, and in a bizarre or flake the self petals were extracted as well as those the marks of which were not in accordance with a perfect petal, and then petals with lesser faults were covered as well as possible with as good a petal as could be made to hide the defects. A Picotee was made to undergo the same ordeal, and all faulty petals so far as they could be spared plucked out.

These few remarks, offered with the best of feelings, I hope will meet with the approbation of all true florists.—JOHN SLATER, *Cheadle.*

CLOVERLEY HALL,

THE beautiful seat of Mrs. Pemberton Heywood, is situated about six miles from Whitchurch station in the county of Shropshire, and is about half an hour's ride by train from Crewe. The principal entrance is from the Whitchurch road, about three-quarters of a mile distant from the Hall—a large and imposing structure—the erection of which was commenced in 1864 and was completed in 1870. A broad and well-kept drive leads through the park to the carriage front of the building, the north-eastern front of the Hall overlooking the lake, also a well-wooded and undulated park. The lake is not large in extent, but is tastefully formed with three small islands in it attractively planted. A grass terrace 200 yards long, traversed by a gravel walk 14 feet wide, extends from the mansion and terminates in the pleasure grounds leading to the lake. On the south-western front of the mansion is the flower garden, in close proximity to the building, laid out in Box and gravel. The design is simple and very pleasing. Carpet bedding is well and judiciously carried out, not too much to look formal, for a large quantity of flowering plants are also employed. Mr. Jones, the gardener, is certainly to be congratulated upon his great success in bedding. A hundred thousand plants are annually used, which affords some idea of the extent of this section of his charge. It is not necessary to enumerate the various kinds of plants employed, it being sufficient to say that all the flowering and foliage plants

usually found in large gardens and public parks are effectively arranged in the flower garden at Cloverley during the summer.

Passing from the flower garden through the pleasure ground on our way to the rosery noticeable were grand specimens of Wellingtonia gigantea 30 feet high, in good health, compact, and well furnished to the ground. These were planted ten years ago by Mr. and Mrs. Heywood and other members of the family. One in particular, planted five years ago by the ex-Premier while paying a visit to Cloverley Hall, had made fine luxuriant growth. Amongst others worthy of notice Cryptomeria elegans, Picea nobilis, 25 feet high (grafted plants of this fine Pine do not do well with Mr. Jones, they being stunted and shabby, while the seedlings grow luxuriantly and produce cones freely); P. Nordmanniana, 30 feet high; P. Pinsapo, 15 to 20 feet; and a fine young plant of P. magnifica (this promises to be a very fine Pine), Abies canadensis, A. Douglasii, Cedrus Deodara, and C. atlantica, of which there are several grand specimens, which seem to be quite at home and growing well. There are also good collections of Thujas, Yews, Hollies, Rhododendrons (named sorts), Retinosporas, of which the grand R. dolabrata variegata, well variegated, is very compact and about 10 feet high. Junipers abound in quantity, and I think I never saw anything more beautiful when the sun was shining on it than Juniperus chinensis aurea. This I regard as the finest Golden Conifer in cultivation. In fine contrast to the specimen mentioned is a magnificent Araucaria imbricata 35 feet high, in good health and clothed to the ground with branches.

We now arrive at the rosery, which is tastefully laid out. Mr. Jones remodelled it last winter, and has considerably improved it by his alterations. A herbaceous border runs the whole length of the rosery on either side. In these borders the Roses are trained up poles 6 or 7 feet high, with chains going from one pole to the other. The greater part of the

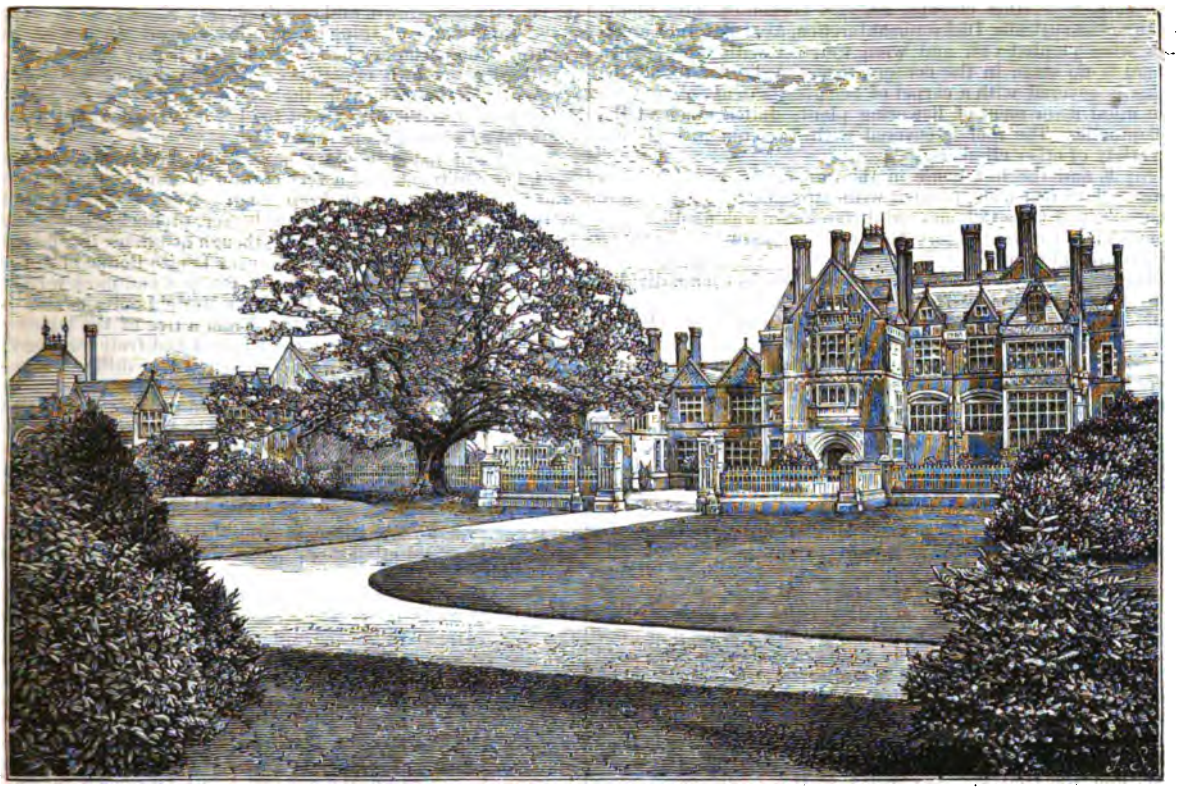


Fig. 2.—CLOVERLEY HALL.

Roses are dwarfs and half-standards, and number over 4500 plants in three hundred varieties, and when in bloom the sight is gorgeous. In the centre of the rosery a large circular bed was filled with Gladiolus at the time of my visit; they were in full bloom and were highly effective. We pass out of the rosery through an elaborate summer house, flanked by rockwork planted with a choice collection of British Ferns, alpines, Cotoneasters, and other plants suitable for the position. We cross another part of the pleasure grounds under the shade of very large Oaks, Elms, Horse Chestnuts, and a variety of other fine forest trees, and find ourselves in what it known as the back drive, leading from the back part of the Hall to the stables, home farm, kitchen garden, and glass houses.

This drive is banked up on each side and planted with common Laurel and Berberis, which are kept closely cut, and rising from them are good specimens of Cedrus Deodara, Cupressus Lawsoniana, Thujopsis borealis, and most conspicuous are two examples of T. borealis compacta. The Conifers are now 25 feet high and will in a few years form a very pleasing avenue. Half way down the drive stands a very large and at the same time a very curious Oak. The tree has divided into two, so that anyone can walk through it. It was carrying fine foliage, and from all appearance looked as if in excellent health. As we approach the glass houses we notice a wall 400 feet long planted with a splendid collection of cut-leaved and variegated Ivies.

The glass structures are extensive. House No. 1 is a half-span 36 feet by 15 feet wide, and filled with Vines in pots bearing a good crop of fruit. With these Vines Mr. Jones tried a series of experiments with various manures, and found none to equal Amies' patent manure. The Grapes dressed with this fertiliser were of a better colour, and the foliage was also healthier than that of the other Vines. Guano was applied to a portion of the Vines, which assisted in ripening the foliage prematurely, and the Grapes were not such a good colour as is desirable. Underneath the Vines were Eucharis amazonica throwing up flower spikes freely. No. 2 is a span-roofed house, 50 feet long and 15 feet wide, filled principally with small stove plants for decorative purposes. No. 3 is also a span-roofed house 60 feet long and the same width as No. 2, and is divided into two compartments. The first of these was filled with Zonal Pelargoniums, the latest introductions of such raisers as Denny, Pearson, and Cannell. This house was a blaze of bloom, and some of the trusses measured were 7 inches across. A few of the best varieties were Henry Jacoby, dark crimson; Mr. Newdegate, single bloom 2 inches over; Sophie Birken, Miss Strachan, President Thiers, Dora Charlton, Rev. A. Atkinson, Louis, finest dark in the house, excellent trusser;

Mrs. Bourne, Jealousy, Guinea, very distinct in colour; Lady Byron, fine pink; Lady Sheffield, Lady Emily, Mrs. T. F. Fenn, Snowdon, a good white; and Dr. Denny, a very good purple. The second portion of this house was filled with Vines in pots bearing a good crop of Grapes, but rather short of colour; underneath were Ferns in small pots principally for cutting and for decoration. Mr. Williams's Adiantum gracillimum was largely grown. Near to these houses are a number of span-roofed pits chiefly filled with Cucumbers and plants for decoration. Nos. 4 and 5 are vineries planted last spring, the former with Black Hamburghs and the latter with the same variety and Muscats. The Vines were doing well in both houses.

No. 6 is devoted to Camellias in winter. At the time of my visit the house was filled with semi-double Pelargoniums. These will prove to be a very useful class of plants. No. 7 in this range is the conservatory, a large span-roofed structure, containing good examples of Chamærops Fortunei, Phœnix reclinata, Seaforthia elegans, Latania borbonica, large plants of Dracæna australis, Dicksonia antarctica, &c. Several Camellias were planted out, and were well set with flower buds. There is no stage in the conservatory. A border round the sides is covered with a carpet of Selaginella denticulata, with the usual assortment of flowering plants dotted amongst the Selaginella. The roof is covered with Tacsonia insignis and a variety of other climbers.

No. 8, and the last house in this range, is a vinery 80 feet long and 18 feet wide, planted with Muscats, Alicantes, Lady Downe's, and Gros Colman. Half the house was planted with young Vines two years ago. They are remarkably strong. The others are old canes.

The range of Peach houses are nearly 300 feet long, divided into four compartments. The first and last divisions of the range are planted in the front of the house with pyramid trees 6 feet high, and all the back wall is covered with dwarf-trained trees. The remaining two compartments in the front are trained over an arched trellis. The trees were loaded with fruit, the crop being in fact too heavy.

There are two kitchen gardens, in all about six acres. A broad walk 12 feet wide runs through the centre of the garden from the conservatory door, and is tastefully bedded on each side. In these borders Happy Thought Geranium is used, and is very effective by its distinct colour of flower and foliage. This walk terminates in a cross walk running through the kitchen garden from the east side to the west door. The borders on each side of the walk are "carpet bedded." There is a good collection of pyramid Pears, Apples, Plums, and Cherries in both gardens, and the walls are covered with splendid trees well trained, and some varieties bearing good crops of fruit. The ground is well cropped with the usual assortment of vegetables, and a border 300 feet long is filled with Violets, chiefly Marie Louise, which is Mr. Jones's favourite, giving flowers for eight months in succession.

A splendid avenue of choice Conifers 30 feet high leads from the west door of the kitchen garden to Corra village, the vicarage, and the church. Any notes of this grand inheritance would be incomplete without reference to the splendid tombstone erected in memory of the late John Pemberton Heywood, Esq., and the church which is being rebuilt by Mrs. Heywood in memory of that honoured gentleman, and also the complete farm houses and cottages erected by him for his tenantry.

Mrs. Heywood is a great patron of flowers, and takes much delight in her garden, and is further ever ready to render assistance to objects public and private, and make those about her happy and comfortable. May horticulture win many more such admirers.

Mr. Jones is a gardener of skill and perseverance, and great credit is due to him for the able manner in which he manages the gardens under his charge.—W. B., *Visitor*.

MARÉCHAL NIEL ROSE CANKERING.

I HAVE expected to read of some remedy for the cankering of Maréchal Niel of which Mr. Laxton speaks in his able letter. As nothing has been suggested I venture to state my experience in the matter. Maréchal Niel in common with some other Roses, notably Madame Berard and Homère, makes too rapid a growth for the stock on which it is budded. The plan I have adopted with uniform success is to make a couple of deep cuts from the Rose to the stock; this I do the second year after budding, the result being that stock and scion make equal growth. Sometimes Nature will assist herself and the bark of the stock will burst; but the knife gives as quick relief to the Rose as does the loosing of the button to an alderman after a civic feast. That this may enable my old friend Maréchal Niel to digest his food better for the future is the hope of—A KENTISH CURATE.

PEARS: WHAT SORTS SHOULD BE GROWN?

IT seems rather singular that this country, which stands so high in a horticultural point of view, should be so much muddled in its varieties of Pears that are under cultivation. I have little hesitation in saying that if only half the varieties which are grown were cultivated (the best being selected), that much more satisfaction would be the result. Roses have of late had great attention in your Journal, where the best varieties have been tabulated. I should be very glad to see Pears have similar attention. The importance of this subject does not require any comment. Say in a garden there are two dozen varieties grown, and one dozen are almost of no value —the same state of things pervading a good portion of the country—the pecuniary loss in the matter is very considerable. I will give my own experience. We have about a score of sorts, and of these I name the best as they come in. In so doing I am not able to say that the list is over good, but something may be noted therefrom.

First I will name the Jargonelle as the best early Pear we have, but the tree is not a very certain bearer; and when the fruit is ripe it does not keep long. Next I will mention Williams' Bon Chrêtien as a good bearer, producing good-sized fruit, and sometimes very good, though at others the flavour is not very agreeable. When this is over Louise Bonne of Jersey will be about ready. This is one of the best and most reliable of Pears for quality. After the latter Marie Louise comes in. These two are always first-rate. From a tree of the latter on a wall on which there was a good crop I had fruit for use for about two months. They were gathered at four different times, but those last gathered did not keep the longest. A good trayful of the second gathering were placed in rather a drier place, and instead of ripening they all shrivelled a little, and were not fit for use when the last gathered lot were over. I shifted the fruit to where the others were kept, and in a week or two they were good, thus prolonging the season of good Pears. Comte de Lamy from a young tree is a good autumn Pear with us, though small; and after naming these few I would about as soon be without all the others that have fruited, and which I will name:—

Beurré d'Aremberg, a good cropper, but fruit second-rate, Beurré d'Amanlis, no use at all for dessert. Beurré Clairgeau, fine showy fruit, but second-rate in flavour. Beurré Diel, also fine showy fruit, but uncertain in quality though sometimes good. Easter Beurré has not been worth its place, and the same remark applies to Beurré Rance. Althorpe Crasanne becomes mellow, but flavour very moderate; quite second-rate. Doyenné d'Alençon I have just discarded, and also the White Doyenné. The Red Doyenné is a good Pear but shy bearer. Joséphine de Malines has borne no good fruit with us; trees were planted at the same time as some Beurré d'Aremberg and others which have borne well for young trees. Napoleon from west wall quite second-rate. Winter Nelis from a standard has not proved of much account, but this on a wall and well grown I have no doubt would be first-rate. Seckle, which is considered a fine-flavoured Pear, not on a wall is of very little account: the fruit is too small in size. There is an American variety on an espalier which bears fine-looking average-sized fruit, but for flavour not equal to Marie Louise or Louise Bonne of Jersey.

It is very unsatisfactory after trees have been procured and grown for a few years to find that they are of little value. Time and room have been thrown away. Some few more varieties of Pears we have, but these are the most of them, and a fair description so far of the quality. Many other observations, I have little doubt, will be able to shorten these lists of Pears, if what are really good only are to be cultivated. Previously, in a much larger collection of which I had experience, as much curtailment was necessary to leave only good sorts.—R. M. H., *Cheshire*.

GILBERT'S CABBAGE BROCCOLI.

IN my opinion the Fruit and Vegetable Committee of the Royal Horticultural Society did very wisely when they awarded this vegetable a first-class certificate. That same day, through

the kindness of Mr. Gilbert, I had a head of it for my dinner, and there and then I pronounced it to be by far the finest flavoured Cabbage I ever tasted. When well boiled with a little salt and served with a sprinkling of pepper and butter, it was as tender and as delicious in flavour as the finest Broccoli. It is a cross between the Cabbage and Broccoli, effected with the intention of combining the hardy character of the former with the fine flavour of the latter, and this has been secured in no small degree, and is a vegetable I think of great value. During severe and protracted frosty weather like what we are now experiencing, Broccoli neither comes quickly forward nor do their "protecting" leaves serve them much when they are drooping with frost, and the hardiest flower soon becomes black with exposure, so that in cases of this kind this Broccoli Cabbage will readily supply a want that many will be eager to accept. A good batch of it in every kitchen garden, especially in the north, could not fail to be much valued at the present time.—A KITCHEN GARDENER.

WINTER WEATHER.

SOME notes on the frost, which has at length relaxed its grasp after affording at last a real old-fashioned Christmas, may be interesting to some of your meteorological readers. The locality is mid-Surrey, on the banks of the Mole; the register was made from a thermometer on a stand with a north exposure, and 3 feet above the grass. In this locality the range is somewhat low, though sheltered by the North Downs at the distance of half a mile. I have registered 32° of frost on a former occasion, and have had evergreens killed when on the hill above the minimum observed was 15° higher. There is this singular circumstance, that the snow is always deeper and remains on the hill at least a fortnight longer than with us. On this occasion the lowest point reached has been 7°, giving 25° of frost, this was on Christmas eve. Other observations are as follows:—

Dec. 10—	Min. 19°,	and at 9 A.M.,	28°	Dec. 23—	Min. 18°,	and at 9 A.M.,	33°
„ 12—	„ 12°,	„	20°	„ 24—	„ 17°	„	24°
„ 20—	„ 21°,	„	24°	„ 25—	„ 7°	„	27°

The season has been, in some respects, the most singular I remember. The frosts and the thaws always seemed to come at the wrong time. There has been plenty of ice, and yet very little indeed fit for skating on, except, indeed, along the roads, which were never so glazed in the memory of the very oldest inhabitants. The boys with their slides have been masters of the situation; indeed, they had no need to make them. Every path for a week or more was one long drawn-out slide to the exceeding peril of unwary pedestrians. And the Roses? Ah! that is the important consideration—time will show. 25° of frost is somewhat serious. I do not much object to 20°. A good Hybrid Perpetual ought not to mind that; but anything over begins to be ominous. My Manettis and Teas were all happily wrapped in fern presented by a kind neighbour, who lets me cut by the cartload about a fortnight before the frost sets in. Standard Roses are not so easy to protect; they have had to be content with a wisp of fern upon the heads of the more tender. I quite expect to find with some will perish through the stock between the head and the root being frozen through. Perhaps, on the principle of the "survival of the fittest," those that go will not be much to be regretted; and it will only be a thinning-out of some that would never probably have afforded really good exhibition blooms.

I take this opportunity of offering the very best wishes of the season to all fellow rosarians and lovers of the gentle craft. "God Almighty" says Lord Bacon, "first planted a garden, and indeed it is the purest of human pleasures."—A. C.

THE OLD MARKET GARDENS AND NURSERIES OF LONDON.—No. 22.

UPON a recent visit made to Brompton and its vicinity in order to test some reports by a personal inspection I stood in amazement at the changes a few years had brought about. Like the poet, I felt "my distance and horizon" were gone. New roads and terraces had quite upset my recollections of localities once familiar. Fruit trees, Cabbages, and Lettuces had vanished to give place to big mansions, grouped together in a manner indicating that the designers did not study æsthetics so much as the monetary value of the land. Strange to say, the railways crossing some part of the district seemed to be a useful means of maintaining a little space free from buildings, but by-and-by perhaps even these will be covered over. Indeed so far from there being, as I previously conjectured, a third of the market-garden ground left, alterations since 1873 have nearly left Brompton proper minus gardens and nurseries, a final inroad having been made on that extensive plot of land between Gloucester Road and Earl's Court. In several of our London suburbs many trees remain to this day that were planted in the olden time along the hedges and amongst the fields, but Brompton does not yield us many of these relics of the past. Some fine trees have been ruthlessly sacrificed that interfered with the builders' plans; and though on a few lines of road young trees are being planted, these will not cast a shade nor afford a pleasing prospect for a good while to come.

The grand nursery of Brompton we have already described. Very close to that was the establishment owned by Mr. Kirke in the "Park Lane," as it was called, containing at one period fourteen acres of land, but at last it was reduced to six or seven. The "Homestead," a certain portion of this ground, was surrounded by high walls, the north wall being of considerable antiquity, having once belonged to Cromwell House, part of the estate of which was included in Mr. Kirke's ground. An old building at the east of the nursery was reputed to have been an outer lodge connected with this mansion. When Faulkner visited this nursery the culture of the Muscadine Grape was one of its specialties. About 1000 feet of the north wall was covered with Vines, and they were also cultivated in rows for sale. Upwards of a hundred kinds of Apples were to be seen there in 1820, much of the ground being occupied by fruit trees. It had been in the hands of the Kirke family from 1750, but in 1853 or 1854 the ground was cut up by new roads and built upon by degrees, the competition with the growers of fruit in the country rendering it difficult to realise profits such as had once made suburban orchards capital speculations.

The eastern end of Cromwell Road doubtless crosses what was once Kirke's nursery; and Cromwell Lane, I presume, skirted part of it. To the north of this lane, and near thereto, was Cromwell or Hale House (the latter was the original name), one of the numerous houses in or near London that have had traditions more or less incredible concerning their occupancy by the great Protector. Some of the ground by Cromwell Lane was cultivated as a market garden until a more recent date; the old house, then dilapidated, was occupied by one of the Pouparts. That family had been long known as market gardeners and nurserymen in Chelsea and Brompton. Faulkner in 1820 assigns Mr. Poupart twenty-six acres of ground in Little Chelsea, situate, I believe, both north and south of the Fulham Road near the Brompton Cemetery. Part of the land that now forms that sadly overcrowded resting place of the dead was under tillage previously, but part was open fields grazed by cattle.

Some of the land leased by gardeners and nurserymen in Brompton belonged to the estate of Smith's Charity, together with other land in Chelsea and Kensington, an estate which has been the subject of a recent lawsuit which much amused some persons and enraged others who stood upon their rights as descendants from Alderman Smith. The documents connected with Smith's Charity estate would throw light on obscure points of local history, but access to these cannot be had. The Consumption Hospital in the Fulham Road is in a part of this property, which extends westward, embracing what used to be called Brompton Heath. The land in 1846, when the building was commenced, had been a market garden, either Mr. Attwood's or Mr. Street's, for they were both gardeners in Old Brompton, the one cultivating about eighteen acres, the other twenty-six, in Faulkner's time. Thurlow Square and some adjacent streets (including, I think, Alexander Square and a frontage in the Fulham Road) was once the nursery ground of Mr. Harrison; subsequently the firm became Harrison & Bristow. The date of this nursery was attributed to the close of the seventeenth century; there was at least evidence that it had been owned by the Harrisons for upwards of a century. In 1820 the nursery comprised twenty-seven acres. Like various nurseries we have referred to, it underwent a gradual diminution. Most of the space was devoted to fruit trees, ornamental shrubs, and evergreens. Mr. Salisbury's nursery was also at Old Brompton, between Brompton Road and Fulham Road by Queen's Elm; this was ten acres in extent, and had previously belonged to Mr. Curtis. Much attention was given here to exotics, some of which were early in this century sent off to France, Spain, Italy, and other continental countries from this and similar London establishments. Malcolm & Co.'s nursery has left no particular record. It was on the east side of what is now called Gloucester Road, opposite

St. George's Terrace, and the home nursery was between Victoria Road and the Gloucester Road, Kensington. This also was said to have existed since the reign of William III. Its early possessors had borne the name of Grimwood, and the land, at least in part, had been the garden of Noel House. Faulkner sets this nursery down at twenty acres. This Malcolm was nephew of the more famous Malcolms of Kennington and Vauxhall.

A small and more modern nursery at Old Brompton was owned by Mr. Gibbs, who turned to the best account the six acres he had; the ground, it seems, was devoted specially to horticultural and also agricultural experiments. Our chronicler states that one section of the land was divided into upwards of eight hundred compartments, each 2 feet square, divided by footpaths, containing every cereal and a variety of other plants commonly grown in farms as food for man, or cattle, or economic uses. There was also a division for Grasses, both meadow and lawn. The rest of the land was devoted to flowers and shrubs, chiefly with the view of obtaining seeds. There were large warehouses on the premises for storing, and at one time the firm did a good trade with country as well as London customers. In his list of gardeners and nurserymen Faulkner places two on Brompton Heath, Mr. Shailer and Mr. Pamplin, giving them seven acres between them. The Heath, however, was of much greater extent than that, as it may be considered to occupy all the space between Swan Lane and Thistle Grove east and west, with Fulham Road to its south and Old Brompton Road to the north. Some of this land is even yet waste ground, as I have remarked in a preceding article, bearing the Thistles descended from those which formerly originated the name of Thistle Grove. Heath Cottage was near the Swan on the north of the Heath; and the land attached to that portion of the Heath was, after Faulkner described the spot, occupied in succession by Messrs. Joyce, Bowers, and Rubergall, and at last let for building purposes. The enclosure abutting on Thistle Grove was made about 1860, and the vegetables cleared to give space for athletic performances: here the noted Deerfoot figured before the public. Lastly it became the South Kensington Skating Rink. A solitary link connecting the past and the present is the nursery owned by Mr. Hoskins, opposite what was formerly Chelsea Park. There is no open ground attached to this nursery now. A little beyond this point was a lane called Sallad Lane, shown in the old maps, and not inappropriately designated, seeing that it ran beside a market garden. Its locale is now uncertain, as also that of Hogmore Lane, though that may have been the commencement of Gloucester Road. Dove Lane, higher up, is the line of road by the side of Brompton Villa. This aforesaid road, which even in my recollection had a rural aspect, takes its name from a residence pulled down in 1852, which was once occupied by the Duchess of Gloucester, and in which Canning lived for a time. This house, called Villa Maria, and its grounds occupied the place of the celebrated Florida Gardens—not nurseries, however, but a pleasure resort loved by the London citizens of the early years of George III.'s reign. Fifty years ago there were actually corn fields in Brompton, but no one knows when the last vanished. The stronghold of the market gardeners, so to speak, was that extensive tract of land lying north and south of Old Brompton Road, and bounded on the east by Gloucester Road and Seymour Place, and on the west by Brompton Cemetery and Earl's Court Road. I should conjecture there were about four hundred acres under cultivation in Faulkner's time, when Hutchins owned 213 acres and Gunter sixty, and others had some smaller holdings. After several years nearly the whole came into the possession of Mr. Gunter the noted confectioner of Berkeley Square, and who then lived at Earl's Court House. Many persons now living remember, on the south of Brompton Road, the fields intersected by Walnut Tree Walk and by Honey Lane, the latter being part of a favourite shady walk that led from Little Chelsea to Holland House. Across the road in the direction of Kensington numerous paths between hedges of Hawthorn, Privet, and Wych Elm, over which in most seasons the Bedstraw and Convolvulus festooned themselves, offered agreeable strolls to the inhabitants of Brompton and Kensington. Where is now Raspberry Lane? where the Lover's Walk? Even their positions are forgotten and only enshrined in maps. A variety of vegetables were grown in these grounds, and some space was also given to orchards of Apple, Pear, and Plum. A Queen Elizabeth Apple is said to have been produced here; the name, if so, was probably suggested by the Queen's Elm adjacent, near an old house where Her Majesty visited Lord Burleigh. Gilston Road, The Boltons, &c., were erected on this estate between 1840 and 1845, and for some years the locality remained undisturbed until building operations were commenced in Walnut Tree Walk about 1863. The space next the Cemetery between the Fulham and Brompton Roads is now crowded with houses not very healthily situated, and with an insufficiency of garden ground attached to them. In that and succeeding years the land near the Gloucester Road began to be built upon, but some acres of these market gardens escaped the builders until 1873, since which year they have been cleared. In Earl's Court Road the nursery of Mr. Goss (Vine Cottage) is still to be seen, but plants are only grown there under glass; it is not of very old date.—C.

ERYTHRINA CRISTA-GALLI.

FEW plants are more admired than the "Coral Plant" when it is seen in good condition. Either as trained against a wall, as flowered in pots in the conservatory, or as grown in large beds in the flower garden, it is alike effective. Plants in a dry position at the foot of walls are hardy. I have had one under my charge for twenty years, and it has never failed to grow and flower profusely. The roots are in a gravel walk, and are afforded no protection during the winter. In open beds the case is different. Probably where the subsoil is very dry the plants may pass the winter safely; but in the majority of flower beds they will perish—not from frost so much as excessive wet.

No one not having seen a large bed of the Coral Plant in the flower garden or pleasure grounds can form any conception of its unique appearance. It is totally unlike any other bed, the stateliness of the plants and their rich appearance when covered with flowers render a group of these plants highly imposing. A very fine bed of Erythrinas attracted much attention in Victoria Park last year. All the plants were of the same height, and all alike were covered with brilliant flowers. The secret of having beds similar to the one named is to raise the plants from cuttings, not from seed. The seed of the Coral Plant germinates freely and a stock of plants is easily raised in the manner suggested, but not one in ten of them will grow so sturdily and flower so freely as plants from cuttings. Plants for flowering in pots should always be raised from cuttings. A cutting struck in March will form an attractive plant with a single stem that will flower freely the same season in a 5 or 6-inch pot. The year following this plant will produce several stems, and will make a grand bush if shifted on and given generous treatment.

The proper mode of obtaining cuttings is to pot a few plants—unless some are already established in pots—and place them in heat in February. They will soon push several growths, and when they are a few inches in length they must be taken off with a portion of the crown attached, and be inserted in small pots and plunged in brisk heat, precisely as if striking Dahlia cuttings. Dahlias, however, will strike freely without a heel of the old crown; but Erythrinas will not do nearly so readily, therefore it is essential that the point indicated in their propagation be specially attended to. When rooted the plants simply require a shift into 48-pots, a very light position near the glass, and a genial temperature to keep them growing freely, eventually placing them in cool frames preparatory to being planted out.

Older plants established in pots may, if the shoots are not wanted for propagating, be grown on, and they will flower freely in April; and if after the flowers have faded the stems are cut down fresh growths will immediately be produced, and with the aid of liquid manure another fine crop of flowers will be produced late in the summer. When the plants are grown in pots under glass great care must be taken to prevent the attacks of their great enemy red spider. Copious supplies of water to the roots and regular syringings of the foliage are the effective antidotes of this pest. When the plants are grown outdoors they are seldom injured by red spider, and both foliage and flowers are usually finer than when produced under glass.

Those not having old plants for affording cuttings can only raise a stock of the Coral Plant from seed. Very few of the seedlings will flower the first year, but they will produce crowns for affording cuttings the following spring. These if struck and grown on as suggested will, I presume, flower freely, but I have not actually proved them, always having had a sufficient amount of cuttings from established plants.

I commend this good old plant to those who desire something different in their flower gardens from carpet beds,

blazes of Geraniums, and Castor-oil Plants. — A SURREY GARDENER.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Forcing Department.—Continue to prepare fermenting material for successional plantings of Potatoes, and for successional sowings of Carrots and Radishes, which we sow in alternate rows 3 or 4 inches apart, the Radishes being off before the Carrots have grown so as to require more space. If there is likely to be any deficiency of Lettuces in late spring or early summer a bed should be made up about 2 feet high of well-fermented material well beaten down, and when the heat is up level the surface, placing on about 6 inches of light rich soil, sowing the seed in rows 6 inches apart, covering lightly. Early Paris Market is an admirable variety, as also is Commodore Nutt, they both turning in quickly. Air should be given so soon as the plants appear, the object being to keep them from drawing until the second leaves appear, after which they will bear more heat, but are the better of free ventilation whenever the weather permits. A few seeds of Cauliflower may be sown between the rows, transferring the plants, when large enough to be handled, to other frames or boxes. Erfurt Mammoth, Early London, and Walcheren are suitable varieties. A little seed of Brussels Sprouts may also be sown, the plants being treated in a similar manner to the Cauliflowers. Introduce successional supplies of Seakale, Rhubarb, and Chicory to the Mushroom house, and make up and plant fresh beds of Asparagus to supply the place of those now in use. A little Celery seed may be sown for a first early crop, also Tomato, keeping up the supply of small salading as required. Lettuces, Cauliflowers, Parsley, &c., in frames should have air whenever the weather is favourable, but during the prevalence of frost it is well to keep the frames covered day and night, the crops not taking the least harm though kept dark for several days provided they are cool. Uncovering in severe weather not only entails much labour, but any growth that may be made during the day is very tender; the alternating warmth and severe cold is not good for the plants, and they therefore winter very indifferently. We have had Cauliflowers, &c., under a covering of snow for weeks, and they turned out better than those from which the snow and covering were removed daily. If Peas were not sown in autumn a sowing may now be made in inverted turves cut 2½ inches thick and 4 inches wide, the strips having a groove cut down the centre about an inch deep, sowing the seed in the groove, covering it with soil, and placing the turves in cold pits or a late Peach or orchard house, and when the Peas are 3 or 4 inches high the turves may be carried out and placed in drills prepared to receive them. Potatoes in pots, if growing freely, should be earthed up when the haulm is sufficiently advanced by filling the pots to within half an inch of the rim with good light soil; those in pits or frames will require careful attention in ventilating whenever a favourable opportunity offers, the frames to be lined as required, and to be well protected in severe weather. A sowing of French Beans in pots should be made at least every fortnight, earthing up preceding crops when sufficiently advanced, keeping the plants near the glass, with a minimum temperature of 60°.

FRUIT HOUSES.

Peaches and Nectarines.—In the earliest house the trees will be in blossom. As soon as they open the night temperature may be maintained at 50° to 55°, the latter only when the nights are mild; 55° as a maximum by day in severe weather by artificial means when the sky is overcast; 65° by day from sun heat; and if the air be mild 70° may be allowed. Syringing at this dull time must cease, but damping of the floor and border may be practised in the morning and afternoon on bright days. Lose no opportunity of ventilating freely when external conditions are favourable; and when the pollen is ripe choose the warmest and driest part of the day for aiding its distribution by shaking the trees or trellis, or taking a camel-hair brush or feather and gently applying the pollen to the stigma. If there be a deficiency of pollen of any kind it may be taken from those that afford it plentifully, and applied to the stigma of those sparsely furnished with that essential for a good set. The outside border must be protected with litter or some other protective material, the inside border not being neglected for water. The house for affording fruit in June should now be closed, damping the trees and house two or three times a day, turning the heat on by day for an hour or two in the morning, but not so as to exceed 50° by artificial means, allowing to rise to 65° with sun heat and free ventilation. It will suffice if frost be excluded at night. The borders must be brought into a thoroughly moist state by repeated waterings, and the outside border protected with litter, but not of a depth to heat violently. A gentle warmth of not more than 60° to 65° will do no harm, but more heat is hurtful. All that is wanted is a covering to prevent chill from frost or snow, the Peach roots—*i. e.*, Plum being very hardy. Later houses should be put into order forthwith, and if any trees are swelling the buds more rapidly than is desired a covering of mats over the lights will prevent the temperature being raised by sun heat to a prejudicial degree, retarding the flowering considerably.

Vines.—Early houses require great care at this time, being careful to avoid chills of any kind, as those resulting from cold currents of air and watering the border with cold water, which, now that the foliage is becoming active, root-action will be incited, and should be encouraged by watering with tepid water not exceeding 90°, not allowing the fermenting materials to decline in heat at this critical stage. It is a good plan to keep a good heap of leaves and stable manure in reserve from which the supply may be drawn as required. Disbud and tie down before the shoots touch the glass, not being in too great a hurry in stopping, nor being stinted to so many sizes beyond the bunch, but extend the growth so as to insure a supply of well-developed foliage all over the house, avoiding, however, overcrowding. Remove superfluous bunches so soon as choice can be made of the best, avoiding overcropping. Keep the house at 70° to 75° by artificial means as the bunches come into flower. Vines in pots should, so soon as the fruit is set, be copiously supplied with liquid manure, and a moist atmosphere maintained, damping every available surface two or three times a day, and occasionally with liquid manure, keeping the evaporation troughs charged with the same. Vines about to be started should have a good supply of fermenting material placed upon the outside border at the time the house is closed; and if this may not be done owing to a scarcity of material, afford a good covering of litter with shutters to throw off rain or snow. Water inside borders with water at 90° and thoroughly; and if convenient employ fermenting material in the house freely to insure a genial warmth and save fuel. Sprinkle the Vines frequently, 50° being a sufficient temperature by artificial means and 65° from sun heat, until the eyes begin to swell. The rods should be slung in an horizontal position to secure a regular break. A temperature of 45° is sufficient for late Grapes with a dry atmosphere, ventilating freely on fine mornings with a little fire heat, keeping the house closed when the weather is damp. Complete the pruning and dressing of Vines in successional houses without delay, removing every particle of loose soil or old mulching, replacing with fresh, and thoroughly clean the woodwork, &c.

Cucumbers.—Young plants just coming into bearing should not be overcropped, and assist them by removing male blossoms as they appear. Plants in bearing will require to be cut over at least twice a week, removing all weakly and exhausted growths, reserving as much of the young growths as expand their foliage, overcrowding tending more than anything to disaster, inasmuch as it must end in denuding the plants of a large extent of foliage. Stop the shoots at one or two joints beyond the fruit, but young plants should be allowed more freedom, avoiding overcrowding. The temperature by night should be 65° to 70°, 70° to 75° by day with a rise of 10° from sun heat, admitting a little air at 80° if the external air be moderately warm and soft, but if cold and sharp it is better to allow the temperature to advance a little higher than admit too much cold air even when the sun is powerful. A little flowers of sulphur dusted on the foliage, walls, and pipes is a good preventive of mildew and red spider, and quicklime rubbed well into any part of the stems affected with canker will subdue it. The floor should be damped in the morning and early in the afternoon. Sow now for planting in next month in pits or frames heated by fermenting materials, which should be in process of sweetening for making up the beds. If no convenience exist for raising the plants a bed of fermenting materials should be made up forthwith, the seed to be sown so soon as the bed affords a suitable temperature—70° to 75°. The plants from this sowing will be available for house planting to afford a late spring and early summer supply of fruit.

Melons.—The seed to afford plants for the first crop may now be sown. Fruit from this sowing may be expected in late April or early May. It is preferable to sow singly in small 3-inch pots at this season, filling the pots about three parts full of soil moderately light in texture, which will allow of soil being added as the seedlings advance, strengthening them wonderfully. They should be kept near the glass, the object being to secure a short stem and sturdy growth. A temperature of 65° to 70° night, and 70° to 75° day is suitable.

Strawberries in Pots.—Do not push the plants too rapidly in severe weather, 50° to 55° will be sufficient at night for those that were started last month, and 60° to 65° by day; but it is always well to err on the safe side, therefore 5° less in the absence of sun, the weather being cold, is advisable. Another batch of plants should be introduced to shelves in Peach houses or vineries started about this time, treating as advised in former calendars. All our plants intended for house work are plunged in ashes in cold frames, and they are turning out splendidly. Vicomtesse Héricart de Thury, La Grosse Sucrée, and Sir Harry are admirable for starting now, coming-in in a vinery late in March or early in April, followed by those in a Peach house.

PLANT HOUSES.

Stove.—Allamandas Chelsoni and Hendersoni that have been well ripened, and the soil kept dry so as to suspend growth for some time, should be cut back—old plants to within a few eyes of where they were pruned to last year, but young plants should be

cut back so as to afford shoots for covering the trellis, yet leaving no unripened wood. Repot at the time of pruning, removing about half the ball; and if the remaining part be dry soak it in tepid water for a few hours so as to moisten it thoroughly. Turfy loam with a fifth part of well-decayed manure and a sixth of sand form a suitable compost. Allamandas require to be firmly potted. Bougainvillea glabra cut back, sprinkle overhead, and when the young shoots have pushed an inch turn the plants out of the pots, reduce the ball about a third, and employ the same compost as for Allamandas in repotting, a little leaf soil being an advantage. The plants should be placed near the light, and be syringed daily overhead. Clerodendron Balfourianum that has been rested for some time should have the ball thoroughly moistened by repeated watering, removing a little of the old surface soil, but not disturbing the roots much, replacing with fresh soil: if kept moist and syringed overhead the plants will break freely and afford a quantity of bloom early, but do not advance the temperature as yet; 60° to 65° at night and 70° to 75° by day is sufficient at this season. A few Gloxinias now started will come in useful as early flowers for cutting, and Achimenes are little less useful. They should have positions near the glass, or the growth will be lank and the flowers sparse and of short continuance. Amaryllises placed in heat will come in useful by-and-by. Hippeastrum pardinum is now in flower. Imantophyllum miniatum, afforded a light position and an increase of heat and moisture, will throw up grand heads of flowers. Anthurium Scherzerianum having completed the growth will be the better of rest, withholding water but not so as to cause the plants to shrivel, and a temperature of about 50° at night for eight or ten weeks will greatly benefit the plants. Ixoras and Dipladenias keep at the warmest end of the house. Any plants of Allamandas, Bougainvilleas, and Clerodendrons not required starting for some time, place at the coolest end of the house, and afford no more water than to prevent the wood shrivelling. Roof climbers such as Passifloras should have the shoots thinned and cut back so as to admit light to the plants beneath. Gesneras out of flower gradually ripen off, but avoid causing the foliage to flag.

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea.—*General Catalogue of Flower, Vegetable, and Agricultural Seeds, and Lists of Garden Requisites (Illustrated).*

Sutton & Sons, Reading.—*Amateurs' Guide and General Seed Catalogue (Highly Illustrated).*

James Carter & Co., 237, High Holborn, London.—*Vade Mecum and General Seed Catalogue (Highly Illustrated).*

B. S. Williams, Victoria and Paradise Nurseries, Holloway, London.—*Illustrated Catalogue of Garden and Agricultural Seeds.*

Stuart & Mein, Kelso, N.B.—*Illustrated Amateurs' Guide and General Seed Catalogue.*

Dickson & Robertson, 12, Old Millgate, Manchester.—*Catalogue of Vegetable and Flower Seeds.*

Robert J. Veitch, 54, High Street, Exeter.—*Spring Catalogue of Seeds.*

Felton & Sons, Harborne Road, Edgbaston, Birmingham.—*Illustrated Catalogue of Garden Seeds.*

C. R. Freeman, Norwich.—*Economical Gardening Guide (Illustrated), and General Seed Catalogue.*

H. & F. Sharpe, Wisbech, Cambridgeshire.—*Wholesale Catalogue of Garden and Agricultural Seeds.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

MODERN ROSES (*New Rose*).—Dr. Hogg is being sent out by Messrs. Paul & Son, Old Nurseries, Cheshunt; and Hero of Waltham and Star of Waltham were raised by Messrs. Wm. Paul & Son, Waltham Cross, Herts, from whom they can be obtained.

CYPRIPEDIUM SEDENI (*D., York*).—You have been rightly informed that this "Slipper" approaches more nearly to the colour of C. spectabile than any other species or variety, but it is deeper in colour than C. spectabile. C. Sedeni is one of the most free-growing and flowering of the family, and for decorative purposes is one of the most useful varieties in cultivation. You may safely add it to your list of "cool stove" plants that you have submitted; you will not experience any difficulty in its cultivation.

CORNISH APPLE (*F. W.*).—We have never heard of an Apple called "Squingygrub." Can you procure a specimen and send it to us?

MORELLO CHERRIES (*Vicar of C.*).—You need have no hesitation whatever to plant bush trees of this Cherry in your garden. No Cherry is more certain of fruiting in that form, and the fruit will ripen equally as well as if the trees were trained on a north wall. It is not easy to understand why bush and even dwarf standard trees of this Cherry are not more common. Such trees bear with great freedom, and the fruit is very valuable for culinary purposes.

PRIMULAS DAMPING (*S. H.*).—With proper management and a suitable position well-grown plants ought not to damp "in a moderately dry house with the temperature kept at about 50°." The damping of your Primulas arises from one of the following causes or a combination of them: A too crowded and shaded position, too deep potting, poverty of soil, excessive moisture or extreme drought at the roots. The last evil, however paradoxical it may appear, is a fertile source of the plants damping off. It is explainable in this manner: As soon as symptoms of decay are seen, a system of what is regarded as careful watering is adopted, this "careful watering" too often consisting in applying very small quantities of water sufficient only to penetrate a little below the surface of the soil, the great bulk of the compost containing the roots being dry. Under that treatment, given with the best intentions, the plants are sure to damp-off. Turn a few plants out of their pots, and if you find the soil dry beneath while it is damp on the surface, you will have found a prime cause of the decay of which you complain. We shall shortly publish notes on the cultivation of Primulas.

BRIAR CUTTINGS (*E. B. L.*).—Make them the same as Gooseberry cuttings are made—that is, select matured shoots and make the cuttings nearly a foot long, removing carefully all the eyes except three or four at the top of each cutting. Insert the cuttings firmly about 9 inches apart, in ridges 2 feet asunder. When the stocks are ready for budding level down the ridges and insert the buds in the stems. We doubt if the cuttings would root freely if inserted in March. You had better insert them immediately the weather is favourable. We have found them root freely when inserted early in November. Only a few inches of the cuttings containing the eyes should be above ground.

PLANTING BULBS (*Suburban*).—Plant the bulbs of Hyacinths, Tulips, and Narcissuses which have made slight growth on the first opportunity when the ground works tolerably freely. We do not approve of making round smooth holes with a blunted dibber and inserting the bulbs in them at this season, but prefer drills being drawn at the proper depth so that the bulbs rest on a loose surface from which the water passes away freely. If a little dried soil or sand can be placed in the drills before the bulbs are planted it will be an advantage. They should be covered 2 inches deep, a little less or more according as the soil is light or heavy. The bulbs named will flower freely as the spring advances. Crocuses from having grown more are more subject to decay, the only means to avert which is to plant in well-pulverised soil and to cover the corms an inch deep with a moderately dry and light compost, such as leaf soil or cocoa-nut fibre refuse and sand. Ranunculuses and Anemones may be planted any time during the present month or early in February when the weather and soil are favourable, embedding the tubers in sand and covering them about 1½ inch deep.

VINES AND PEACHES IN ONE HOUSE (*G. C., Croydon*).—The statement in former notes on this subject, that the house was kept closed in bad weather when the Peaches were in bloom in March, is correct. The advice given in the same issue in "Work for the Week," not to attempt a close atmosphere in Peach houses is also correct, the only difference being that in the one case the house is full of fire heat, while the other contains none. In cultivating any kind of fruits at the present time, more especially Grapes and Peaches, it is always a healthy plan to allow a little fresh air to pass into the house at all times, as a close atmosphere of 20° or 30° of artificial heat above the outside temperature is never conducive to free growth or vigorous development. In an unheated house this is not the case, as in bad weather the inside and outside temperatures are about equal, and when a few more degrees of heat are desired it is impossible to secure it with cold wind blowing into the house and nothing to heat it. We have practised Peach-growing with air on continually with the best results, and the same may be asserted about the close system, so that either may be adopted and applied with success according to circumstances. Let me state here, that in my opinion readers of the Journal with a limited knowledge of gardening practice would do well to be guided by the advice given in "Work for the Week," as the notes there given are the most practical and seasonable I have ever read.—A KITCHEN GARDENER.

UNDERHILL'S SIR HARRY STRAWBERRY (*W. H. Owen*).—Messrs. Ireland and Thomson, Seedsmen of 20A, Waterloo Place, Edinburgh, are the only people who have their stock direct from Mr. Hinds. Plants procured from Ireland & Thomson may therefore be relied upon as being true to name.

COTTAGE GARDENERS' DICTIONARY (*John Chesher*).—The "Cottage Gardeners' Dictionary" is not the same as Paxton's. You can have a copy from this office, free by post, by forwarding stamps to the amount of 1*s.* 2*d.*

FILBERT CULTURE (*Old Subscriber*).—The form implanted to Filbert trees in Kentish orchards is that of a huge saucer supported on a stem of about 18 inches high, the branches spreading from the stem outwards and upwards with an easy curve sufficiently far apart to admit light and air among the closely-pruned lateral growth forming the fruit-bearing spurs with which each branch should bristle. The centre of the trees is left open to avoid shading the spurs, of which there is considerable risk from the large foliage when the growth is at all crowded. Especial care has also to be taken to eradicate suckers which spring up abundantly from the roots. The condition and age of neglected trees afford the only safe indications of how they must be treated. Young trees with pliant branches may have the lateral growth cut back to two or three buds from the base, the branches thinned, shortened, and regulated by means of wire or string, with which they are pulled outwards and downwards to impart the saucer-like form. But old trees cannot be so treated, and must either be headed-back to within a foot of the stem and make a fresh start to the total loss of a crop for three or four years, or undergo a judicious thinning of branches and shortening of laterals, just enough to admit light and air without making any sacrifice for the sake of appearance.

OLD SEEDS (*N. J. M.*).—The germinating power of the seeds can only be satisfactorily determined by testing. Sow a pinch of each variety in flower pots, keeping the soil regularly moist and the pots in any warm place, when the seedlings will soon appear if the seed is good. It is far safer to purchase new seed than to risk old without a trial.

CHRYSANTHEMUMS AT CHRISTMAS (*Subscriber*).—Mr. Brotherston informs us that he has quantities of blooms of Julie Lagravière now, which he finds valuable for vase decoration. He finds also Fair Maid of Guernsey, Venus, Gluck, Pyramidalis, Theabron, and Mrs. Kaines useful late varieties.

The great majority of Azaleas may be had in flower at Easter if the plants are advanced in a steady temperature, such as that of a vinery at work or a similarly heated structure.

HEATING APPARATUS DEFECTIVE (*H. S.*).—We do not think there is anything amiss with the boiler; but as you say the circulation is "wretched," we apprehend the piping is not properly fixed, there probably being considerable rises and depressions in the pipes, for with the flow pipes rising from the boiler to their extreme point, or where the return is made to the boiler (where should be an air-pipe at the upper side of the pipe), and from this point the return-pipe falling to the boiler, the circulation will be good, the return pipes not being taken below the boiler. The supply cistern, 90 feet away from the boiler, is of no consequence as regards the circulation, it being a question solely of economy. We should prefer a small supply cistern immediately over the boiler; one that would hold half a dozen gallons of water is quite large enough, the supply to it being regulated by a ballcock, and the pipe from the cistern to the boiler return-pipe being furnished with a check valve that will admit water to the boiler, but close when there is a flow from the boiler up the supply pipe.

REPOTTING CAMELLIAS (*Birmingham*).—Repotting will not induce flowering, but on the contrary will increase the growth of the plants. Plants, however, that have not been potted for the last four or five years may require shifting into larger pots, assuming that the present pots are filled with roots. Camellias, however, are better under than over-potted. Potting when necessary may be performed immediately after flowering or before fresh growth is made, but we prefer shifting the plants into larger pots (when the roots have not to be disturbed), after the buds are set, or from the middle of August to the first week in September. Plants with the buds stationary for the last month or six weeks is a consequence, no doubt, of the cold weather, no fire having been employed. If the buds turn brown they will no doubt fall, but if they are green, fresh, and firm the flowers will expand as the spring advances.

FORMING AN ICE STACK (*R., Castle-Forbes*).—Select a spot, if possible under trees, and upon the base of an abrupt slope in the ground falling some 4 yards in 10. You thus insure a natural drainage from the fact of the ground being lower, upon finding its own level, than the table land you make, upon which to pack your ice. This essential level should be raised by poking out a piece of the bank, or, better, made up with waste stones. Again, in this way, independent of the natural drainage, you easily form an effective water-and-air drain from beneath the centre of the ice, through waste stones, to the level below. If the quantity to be preserved is from thirty to forty loads, as above, four posts should be plunged perpendicularly into the ground, for the double object of forming the place, and more particularly supporting the thatched roof. They should be so placed as to form an interior of 9 feet square; the height of the same should be 9 feet also. Not to trespass upon this interior, a row of hurdles should be placed round the three ends, to be enclosed, stood on end, properly supported. Two feet from these outside should be placed another row of hurdles in precisely a similar way. Between these place the straw, and behind it any old thatch will do; it must be well trodden and rammed down. The thatch should be placed beyond this that it may not become wet. A vacancy of at least 1 foot of open space all round between the aforesaid thatch and the top of this straw wall should be left, to admit of a draught passing right over the mass. At last we come to the filling. If you tip it from the cart direct into its bed it is preferable to have the first layer placed in the way you would flooring tiles. If possible, after the first slight or partly effective thaw, the place should, if the weather proved frosty, be thrown right open. When the weather again breaks, to be effectively covered over with at least 2 feet of straw, the best of wheat straw being placed immediately over it. It is essential for the satisfactory preservation of ice that the stacks be of large dimensions. Small stacks are usually disappointing.

NAMES OF PLANTS (*A. R. F.*).—We cannot name from a leaf only. 2, Pteris cretica; 3, Pilea muscosa.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

A RETROSPECT OF THE HOME FARM, 1878.

DURING the past year we have presented to our readers in these columns a series of articles connected with the improvement and practical management of the home farm; still many subjects remain to be noticed in future contributions of interest and importance to all those engaged in conducting agricultural matters for noblemen, country gentlemen, and others. We trust that in relating our own experience in the management of the home farm it may at the same time prove useful to the occupiers of land, and tenant farmers in general, although to many some of our remarks may be familiar to them through their own experience; yet, as we write principally for the inexperienced, it has been necessary to enter into the minutiæ and detail of the subjects under consideration in a thoroughly practical manner, so that no opportunity may be lost to the home farmer of making himself acquainted with matters gleaned by us in our connection with agriculture extending over a period of many years, and we recommend to his notice the motto of the Bath and West of England Agricultural Society, "Work and Learn," as the best means of acquiring proficiency in his calling. We have also thought proper to introduce weekly articles relating to the work of the farm, as well as leading contributions on particular subjects, in order that attention may be directed more particularly to the daily duties of the farmer as the seasons roll on.

The year 1878 has been characterised by some peculiar features, for in some months of the year, instead of being generally dry and favourable for agriculture, heavy and successive rains occurred, particularly in the months of May and August, which prejudicially affected the tillage of the land for roots and the ingathering of the harvest. At the commencement of the year much land, particularly on strong soils, was left unsown with wheat owing to heavy rains during the previous autumn and winter months. January and February, however, proved favourable for the sowing of spring wheat; beans, peas, &c., were also got in well, but as the season advanced the seed time for Lent corn upon all except the driest soils proved unpropitious, for in very many instances the rains prevented finishing-off the land as usual. The same cause also interfered with the preparation of the land for potatoes, mangolds, &c., the planting of these crops being in various instances delayed beyond the best and usual period. The preparation for other root crops, such as Swedes, turnips, &c., was still more delayed in consequence of the great and unusual rainfall in the month of May; and this being the period at which the completion of tillage is generally finished by burning couch, &c., it was only possible in various districts to cart the couch away instead of burning it on the land. This, however, where a proper use is made of decaying matter from the heap, was of but slight consequence beyond delay. As the season was showery it had the effect in most instances of producing heavy crops of clover, saintfoin, and field grasses generally. The clovers, however, when cut were found to be much injured by slugs and hailstones, which in some cases almost denuded the plants of their leaves, and this has greatly depreciated the value of the clover as fodder. The pastures and meadows, except those subject to flooding, have turned out a capital crop both as to quantity and quality, and upon the whole the hay crop has been stacked in fair condition. Some injury has, however, been done where ricks were unthatched by the thunderstorms which were prevalent during the hay harvest in various parts of the kingdom. All the fodder crops, such as rye, tares, trifolium, &c., have yielded an abundant produce, which has been very favourable for keeping in good condition the animals dependant upon them, more particularly the farm horses, which have shown in excellent working order with a less supply of corn than usual.

The crops when fed off upon the land by sheep have proved very nutritious, and in all cases either of store stock or fatting animals they have in the hands of good and careful shepherds made profitable returns for the food consumed. As the season proceeded the second crops of clover and other grasses proved abundant, a larger acreage than usual had been retained for seed both of saintfoin and clover; but the probable yield is likely to be deficient, particularly of red clover seed. The pastures have throughout the season furnished an abundance of grass for horned cattle as well as sheep, and it has proved one of the best seasons for milch cows, whether the milk was turned into money by the production of butter, cheese, veal, or sale of milk, that we can recollect; also in those cases where cattle have been grazed for beef the grass upon fertile pastures has been so nutritious that a less quantity of supplementary food, such as oil cake, &c., has been required to turn them out in first-rate condition, and supply meat of prime quality. The fat cattle killed up till Christmas have, as the butchers say, died well—meaning that they have turned out a heavy weight of internal fat. There are, however, many cases in which cattle were purchased too high to yield a good profit for feeding, which goes to show that on the home farm we should breed all we require and feed all we breed. This will insure the profit attending both of breeding and feeding.

The breeding flocks of sheep have this year proved very profitable because lambs have sold at a high price, and a greater number than usual have been saved. The off-going ewes, too,

have been sold at high prices, and we have never seen them come to the autumn fairs in finer condition. It is also satisfactory to report that the health of the animals of the home farm throughout the kingdom, whether of horses, cattle, sheep, or swine, has not been better for some years than during the past season. Only a few isolated cases of pleura and foot-and-mouth disease in the cattle, and some foot rot amongst sheep have been complained of, which gives us a strong opinion that the latest orders by the Privy Council will for the future confine these disorders to the farms and places where they may occur.

The hill farms and dry soils have this year had an advantage over the vale farms and strong soils. For the first it has been a season of general abundance except in corn and pulse; but these, together with the root crops, are a full average crop. But upon the heavy lands the result of the harvest has not been so satisfactory. The weather during the harvest on the home farms throughout the kingdom has been very stormy, the rainfall in some districts during the month of August exceeding 7 inches by the rain guage, and it is many years since we have seen the corn samples offered for sale in such bad condition: for in almost every part of the kingdom, unless the ricks were covered-in as soon as built, serious damage has occurred. It is, therefore, advisable that on every home farm a thatcher should be retained, in order that his services may be available at the shortest notice, and also straw should be prepared and put by for use when required previous to the harvest, because labour is always more valuable in the harvest time; and young men should be taught and encouraged to learn the art of thatching instead of trusting to a professed thatcher, whose services are not always to be had when most required.

The season after harvest for effecting autumn tillage, although short, was still sufficient for preparing and cleaning a considerable breadth of land for roots in the spring, where the horse power was sufficient, or supplemented by ox power; but best of all, however, must be considered steam power, because it is not only the efficiency of the work but the quantity of land which can be tilled in a short time. After autumn tillage had been completed we had one of the best seasons for wheat sowing which we have experienced since 1874, and upon all dry soils a full breadth had been drilled up to the middle of November. In some districts, however, particularly the midland and northern counties, some extent of land is still not seeded, owing to heavy falls of snow and rain.

In closing our remarks relative to the season and its effects we must observe that it has been one of the worst since 1860 for the cleaning of the land, and the most productive of noxious weeds. In speaking of the home farm generally we must notice that in nearly all parts of the kingdom there is a great deficiency of chalk and lime on the arable land. We find that this is most felt upon strong soils and even upon some lands resting on chalk, it being often supposed that the underlying chalk is sufficient; but it is not so, hence the number of unused chalk pits in the chalk hill districts, showing that our forefathers applied chalk, but the present generation neglect it. Upon all soils a sufficiency of chalk, marl, or lime must be present in the soil, either by addition or contained in its composition, otherwise roots will be grown neither sound nor nutritious, and in corn crops large bulks of straw may be produced by liberal manuring, but without yielding a due proportion of grain.

The rotation for cropping the home farm is of the utmost consequence, and will differ greatly—owing to variations in the soil, situation, and aspect, and the quantity of land retained as arable in proportion to the park or pasture land. For instance, when there is but a small portion of arable land nearly all will be required for the production of roots and straw for litter. &c., and in such cases rye may be grown and cut for straw only before seeding the land for root crops. On the other hand, where the arable land is above 25 or 30 per cent. as compared with the pasture, especially if it is strong heavy land and expensive in tillage, a portion may be laid into permanent pasture, or else seeded with pasture grasses and fed for three or four years, so that it may come into arable again after having been rested, and likewise whenever the price of corn may render its cultivation profitable.

Hand labour being one of the chief factors to be considered in connection with home farm management it is absolutely necessary that cottages should be provided for a sufficient staff of men, women, and lads for carrying on the work of the farm without depending on casual labourers. These cottages should be so constructed as to furnish sufficient accommodation for a family of six or seven members, so that where families are small young fellows may be taken as lodgers, and trained as workmen for use on the home farm in the future. We also recommend this plan as a piece of estate management, as an accommodation thereby given to the occupiers of the land, in order that the letting value may not be depreciated in the event of the labour question becoming more difficult than at present.

In concluding our review of the year 1878 as relates to the ome farm we may remark that our endeavour has been as much s possible to confine ourselves to matters in which we have been actually, pleasurably, and profitably engaged, in which course we shall continue to proceed in the future.

PAST, PRESENT, AND FUTURE.

Anniversaries in life are like the milestones of a road; they tell of the past we have trodden, of the pleasures of the travel, and warn us, should we retrace our steps, of things to seek and others to avoid. We plead guilty to a weakness for building castles in the air. Those that deal with the past have more of sadness than those that have to do with the present, because the mistakes and the shortcomings are manifest; a sigh follows the remembrance of them, and a wish that we could live our time again and be guided by the experience gained in the past; while when we contemplate the future it is with a bounding heart and sanguine hope of success. There are periods when these feelings are uppermost, and when we are naturally led to the contemplation of the past, present, and future, and to look at that which we undertook years ago, and to ask ourselves whether our endeavours when they have been exercised have been productive of success. These feelings belong more particularly to Christmas and the new year. The former seems the period when there is a cessation from labour for the few remaining days of the year, and the latter calls on us for new efforts. Truly the elasticity of the mind is one of our greatest gifts. We are enabled to discard all previous failures, and to anticipate only success in the future. We are induced in this spirit to review the poultry experience of the past year, and to ask ourselves whether it is of a character to afford pleasure in its contemplation, or to give either certainty or expectation that its outset promises are or will be fulfilled.

No one can deny that the pursuit has afforded an innocent and healthy pursuit to many who are denied the opportunity of following others. The competition at shows is a pleasing excitement. The desire to compete is a part of our nature. It appeals more particularly to the fair sex, who are shut out from rougher pursuits. Thus we see in the list of entries at poultry shows numerous names by ladies. The same in dogs. Poultry can be kept in a small space, and the information to be found in our columns and those of our contemporaries is especially valuable. The overtaxed professional or mercantile man when he returns for the day to his suburban dwelling longs for an entire change. Nothing will afford it so readily as the intercourse with animated nature. The owner of hundreds or thousands of acres may spend his vast sums on shorthorns, or experimentalise towards the production of the pig that will provide the greatest amount of meat at the earliest age or with the expenditure of the smallest quantity of food; but many of our best contributors of acquired knowledge and of our most persevering and oftentimes successful exhibitors are to be found among those who have part of a garden, or at most an orchard of three-quarters of an acre to devote to the pursuit. Another point much in favour of poultry-keeping is that it is a humanising pursuit for children. There are lessons learned in childhood while tending and breeding pets that frequently bear good fruit in after life.

Few hobbies can be converted into profitable pursuits, but there is no reason why poultry should be a heavy loss. From the first mention of the idea of keeping it to the choice of a breed and the conversion of part of the garden to a poultry run there is no question that cannot be asked and reliably answered weekly in our columns. As a rule disappointment is only the result of unreasonable expectation. The tyro must not expect in the first year of his competition to be successful over the amateur of ten years' standing; neither must anyone look for new-laid eggs, occasional table delicacies, and a large profit from a space 80 feet by 20 cropped with poultry. We have frequently seen such a place at the extremity of a garden. The fowls were shut off by a fence, their run was on a slope wired in and at top. A cock and six or eight pullets would have done well, but there were at least twenty of various breeds ill cared for and badly lodged. The ground was covered with food of all sorts, but it never appeared to be swept or cleaned. This lasted two years; then poultry was declared troublesome and unprofitable, and strawberries occupied the space. Last year they had given way to rhododendrons. It is hard to make poultry a source of profit where it is not personally seen to, and above all where the food is not moderately and judiciously given. We are led into this line of observation because the aim and object of the pursuit has been twisted and undue importance given to exhibitions, where it ought in reality to be merely a help to the yard. The first object of societies was to improve the breed of poultry as an article of food; to encourage those breeds that would provide the largest quantity of meat and the greatest number of eggs. The aim is not attained. The latter are imported by hundreds of millions annually, and poultry has been increasing in price for the last few years. The mistake is that the more valuable properties are entirely overlooked and made secondary to the feathering of a leg or the length of a toe, hence the falling-off in the entries at many of the shows. Formerly each pen consisted of a cock and three, or at least two, pullets; now we have long tedious rows of pens, each containing one bird. A step in the right direction was made by the institu-

tion of Selling classes. At the large shows birds may be seen at moderate prices equal to those entered for far higher competition. These are eagerly bought. Turkeys and Geese are not subject to these trivial tests. They have fulfilled the wishes of their patrons, and have doubled their weight and size. Nine pounds were thought some years since an average weight for a Goose. Last week they could be bought by hundreds in London averaging 15, and exceptional birds could be had weighing more than 20 lbs.

Discontent with a pursuit generally springs from undue expectation. This applies to exhibition. There is no such thing as a yard full of winning birds. The distinguished in competition are equally so in the yard. Judicious feeding and great painstaking will cause great growth, and high condition will impart gloss and beauty to plumage, and these in most breeds will lead to success in competition.

Much disappointment springs from the adoption of new and comparatively unknown breeds. They may be kept as pets or chosen as fancies, but for every useful purpose our old breeds are sufficient and may be trusted. Those who are most interested in shows know there is a continual outcry they are not successful, and their managers are out of pocket. The truth is there are too many shows and too many classes. Three or four extra prizes in the variety class would do the work of as many classes with two or three entries in each. It would be a saving in every way. Classes with only two or three entries are a drawback to a show.

For many years we have clung to our favourite pursuit, and are anxious to see it prosper. With this view we have addressed our friends and readers. We trust our few remarks may be approved, and we heartily wish to all

A Happy New Year.

VARIETIES.

We are informed that the entries for the Birmingham Columbarian Society's Show, which is to be held to-morrow, the 3rd inst., numbers 712.

—— Some time ago we informed our readers that there was some probability of a poultry Show being held in connection with the Great International Agricultural Show to be held in London in 1879. At the last meeting of the Council of the Royal Agricultural Society it was decided that it was not advisable for a poultry Show to be included in the programme, on account of the time of the Show (the month of July) being very unfavourable for the exhibition of poultry. On the whole we do not regret the decision, though we should certainly be glad that the many foreigners who doubtless will come to London for the occasion should get some idea of what our best poultry are.

—— We have before us the schedule of the Wolverhampton Show, to be held on January 24th, 25th, and 27th. Eight silver cups are offered for poultry and three for Pigeons. The classification is extremely good, four prizes being offered in all the poultry classes respectively—£2, 15*s*., 10*s*., 5*s*. Game have six classes and are shown singly. Each variety of Brahmas has three classes—viz., for pair of adults, and cockerels and pullets singly. Dorkings have three classes and are shown in pairs. Cochins eight classes. There are in all forty-three classes for poultry and eighteen for Pigeons. The Judges are, for Game Mr. W. R. Lane; for Brahmas, Dorkings, and Cochins, Mr. O. E. Cresswell; for the rest of the poultry Mr. W. G. Nichols (we understand that by an error the classes assigned to the two latter Judges were transposed in the schedule); and for Pigeons Mr. W. Nottage. There is also a Dog show, which will be judged by the Rev. G. F. Hodson.

—— A poultry and Pigeon Show will be held at Ryde on Wednesday and Thursday, February 5th and 6th.

—— We hear that entries for the Shrewsbury Show, to be held on January 2nd and 3rd, are very numerous—nearly a thousand. We advise all fanciers to make an effort to attend it, as they are likely to have a rare treat from the exhibition of many foreign Pheasants from the famous aviaries of Mr. Cholmondeley of Condover.

—— Exhibitors of poultry are constantly complaining, and we believe justly so, of the treatment they receive at the hands of railway companies. Some of the latter, among them the North-Eastern, have a bye-rule to the effect that they "will not be common carriers of poultry," and require those who consign them to sign a paper that they do so at their own risk, or to pay a heavy per-centage on their value. This regulation has been often successfully resisted by the knowing and spirited, but is a cause of trouble and embarrassment to many. The Committee of the Poultry Club have therefore determined to obtain high legal opinion as to the legality of the course pursued by these companies, and to publish the result for the benefit of fanciers.

—— At a recent meeting of the Royal Agricultural Society it was resolved to offer prizes at the International Agricultural Exhibition, to be held in London next year, to the value of £200 for plans of farm buildings, a prize of £50 and a gold medal for the best waggon for conveying perishable goods, meat, poultry, fish, &c., by railway at a low temperature, and prizes to the value of £100 for cider and perry. It was announced that forty entries of English hops had been received in competition for the prizes (£280) offered by a committee of hop growers and hop factors, and two entries in each of the classes for market gardens, and three entries in the class for market garden farms.

—— Our next "Famous Poultry Yard" will be that of the Countess of Dartmouth at Patshull Park, some account of which we hope to give in an early issue.

—— A second Show will be held at Yeovil on January 29th and 30th. The prize list is much increased since last year. There are now thirty-one open and seven local classes for poultry, with thirteen silver cups and three prizes in each class. Pigeons are capitally classified, and have thirty-two open classes and two local classes. Several varieties which are often badly treated have their due division here—*e. g.*, Owls and Turbits each have three classes; there are also separate classes for Swallows, Archangels, and Nuns. Twelve cups are allotted to Pigeons. Cage birds, both British and foreign, are also well classified, and have three cups. Exhibits were promptly returned from the Show last year, and we believe that it was admirably managed. We are glad to read at the end of the schedule that the London and South-Western Railway Company and Great Western Railway Company have consented to issue tickets at special rates for the double journeys. We wish railway companies more often did this, and feel sure that it would pay them well.

—— The Border Counties Show is also fixed for January 29th and 30th at Carlisle. There are thirty-nine classes for poultry, all with good prizes. Ten silver cups and a sewing machine are also offered. There is a class for the best dozen new-laid eggs. Pigeons have fifteen classes and a point cup; Cage birds twenty-five classes, with a point cup and various extra prizes.

TACT AND PERSEVERANCE.

Bee-keeping well understood is both a profitable and pleasurable pursuit. The wonderful courage, ingenuity, cleanliness, order, loyalty, and industry of bees make their study very interesting to rich and poor. The outcome of a bee hive is the reward of successful management. It is this that makes me keep bees and prompt others to keep them. We want to see successful bee-keeping widely spread, especially amongst the working classes. The Liverpool newspapers lately announced that a single vessel brought from America sixty tons of honeycomb in small supers to the port of Liverpool. Why, sixty tons of such honey is worth more than £8000 in the English market! In Scotland during the last few years the weather has been better for honey-gathering than it has been in England. In the pages of this Journal we have lately had evidence of good results in the North this last season. One clergyman had 445 lbs. of super honey from eight Stewarton hives; a working man had 350 lbs. of run honey, and 64 lbs. of super honey from five straw hives. A few days ago I received a letter from a clever bee-keeper in Perthshire, in which he informed me that he had received a profit of £40 from twelve bar-frame hives, and increased the number of his stocks last autumn. These results from different kinds of hives and different ways of management are mentioned with a view to encourage all apiarians to look forward hopefully to the future, and make their aim at and expect great results. Earnest men make the goal of yesterday the starting-point for to-morrow. "Onwards, Excel, and Finish the Race" were the mottos given for last year, and "Onwards" is our motto for 1879. The apiarians in the south will have a turn of honey seasons too, when doubtless they will be rewarded for their care and skill.

I never had greater confidence in bee-keeping than I have at the present time, and this after some unfavourable seasons. Much money can be made from bees properly managed. John Locke, who was considered one of the wisest Englishmen of his day, said that "a person who commences a journey on weak legs and continues to walk, not only gets stronger legs but goes farther than a man with a robust constitution who sits still." Everywhere this holds good. In the gardening, farming, and mercantile world the race is to the swift and the battle to the strong. Thorough-going earnestness in bee-keeping wins the great prizes of success. All modern hives and systems of management have answered well and will answer, but it should never be forgotten that as the best land in the world needs cultivation, so the best hives need attention and management. The difference between bee-masters is greater in my opinion than the difference between their kinds of hives. Energy and determination to conquer are important agents in the history of individuals and the world. Scargill, an able writer, contrasts talent and tact; and for the benefit of young gardeners and young bee-keepers I will quote a few of his sayings. He says: "Talent is power, tact is skill; talent is wealth, tact is ready money; talent knows what to do, tact knows how to do it; talent makes the world wonder that it gets on no faster, tact excites astonishment that it gets on so fast; talent may obtain a living, tact will make one; talent convinces, tact converts; talent

is an honour to the profession, tact gains honour from the profession. Tact has the knack of slipping into good places, and keeping them. It seems to know everything without learning anything. It has no left hand, no deaf ear, no blind side."

Some five years ago when writing on this subject I alluded to the tact or stratagem of old greyhounds in hare-hunting. Young dogs try to be first to catch the hare, and may score "go-bys" and "turns;" but finding they miss the catch at the turn they try to keep second with a view to get the catch. In the apiary there is scope enough for strategic movements. Opportunities various and manifold for doing strokes of business present themselves to men of open eye. In bee-keeping there is always something to learn—room enough for all to turn over a new leaf. Reform, like charity, can begin at home.

It may be well to give now some of the outlines of the various ways of managing bees. The filling in and up of any one outline must of course be left to the hand of the bee-master himself.

In cold springs and in late localities it is good policy to feed bees in small doses—say in the months of March and April. Slow continuous feeding then encourages the bees to breed, and makes them strong for future work. Syrup costs but little, and when properly administered does much good.

In supering hives it is well to cut a wing from each queen, and thus prevent the loss of swarms, and to put supers on before the hives become overcrowded and the bees bent on swarming. It is wise to let the bees have play room in both hives and supers. The art of supering is not well understood. We have yet to learn how much breeding comb and space are necessary in hives; and we do not know whether any one of the many attempts and contrivances that have been made and used to prevent queens from leaving the breeding boxes have been of any use at all. With a good wide thoroughfare between hives and supers many large supers have been filled with pure honey. Pollen and brood are seldom found in supers filled on large hives. If bees decide that supers will be used for breeding in, no contrivance can prevent them setting eggs where they like.

I am confirmed in the opinion given last year that the American comb-foundations will be of great and incalculable value in supering. I call them American because their invention took place there, and in my opinion it is the most important and valuable invention to apicultural science that has ever been made. They will, I think, facilitate supering to an extraordinary extent, and go a long way to revolutionise bee-keeping in Great Britain. This, of course, is the language of opinion honestly and strongly stated. I had samples of comb foundations sent me by a manufacturer of them a few days ago, who informs me that when wax is bleached it becomes too hard for the bees to work. If I live till next midsummer I shall test the foundations in many ways—especially in supering. I commend them to the attention of all British apiarians.

Those who follow the swarming principle have quite as much room for the play of skill and the power of adaptation (tact) as those who go on the non-swarming lines. Sometimes supers may be filled with honey before swarming. In the spring months bees are busy with the rules of multiplication, filling every comb with brood. While thus engaged below they do not object to do a sum in addition above. Supers thus used cannot do much harm or prevent swarming many days in fine weather, and when filled they are excellent and acceptable windfalls.

In the interest of all apiarians I frequently allude to the swarming propensity of bees. To lose first swarms is like losing the cream off the milk—the best goes. To lose swarms is a great mistake and prodigious annoyance. The value of first swarms may be known by the weights they have attained within the last ten years. Single swarms have risen to 120 lbs., 140 lbs., and 160 lbs. each. Last year some rose above 130 lbs. If these weights have been reached without the aid of artificial comb foundations, what may we expect from early swarms by their introduction and use? The future of British apiculture has never been so bright and encouraging as it is at the present time. The activity and industry of swarms are quite a marvel. They are in a tremendous hurry to make a good beginning and get on in the world. In good seasons they often give the go-by to hives that never swarm at all. Mr. George Fox one year had a super weighing 98 lbs. from a swarm obtained late in June—I think on the 28th day. I have never seen or heard of anything better than this. First swarms should be supered as soon as their hives are filled with combs.

Second swarms from large hives are at the end of good seasons about one-third less in weight than first swarms. With second swarms and turn-outs in fine weather it is possible to obtain some super honey from them before their hives are half filled with combs. Their queens are unfertilised, and may not begin laying for ten days after swarming. If small supers be placed on their hives at first the bees commence building comb at once in them, and may fill them before breeding commences. In dodges of this kind the use of comb foundations will be helpful.

Late swarms in favourable seasons are generally heavy with honey when they swarm. We drive the bees into empty hives and take their honey, and the bees (turn-outs) do as well as second swarms. The fact that second swarms fill their hives with combs and run up abreast of stock hives (not turned out) is proof of the greater activity of swarms. Last year we had the record of a virgin swarm in Scotland (a grandchild of 1878) that reached the weight of 100 lbs.

With examples of success from different kinds of hives and different modes of management; with improved hives of every kind, and modern inventions of many sorts; with facilities for comb-building and supering in all kinds of hives; with hundreds of apiarians possessing skill and determination, tact, power, and perseverance; and best of all with bees, the industrial instincts of which never leave them; there is every reason needful to encourage the hope and expectation that the future of bee-keeping will be brighter and better—a greater boon and blessing to working men—than it has been in the past.

As knowledge, like manure, is most useful when it is spread, we hope many of our advanced and advancing apiarians will freely give us and all around them the benefit of their experience. That all of every school may have a happy and prosperous new year is the earnest wish of—ALEXANDER PETTIGREW.

OUR LETTER BOX.

EXHIBITING DORKINGS (*J. C.*).—Any comb is correct in a Dorking. It may be single, double, or cupped. Size, symmetry, good white legs, and well-defined five claws are all important and recognised as such, but combs are not. The only effect of a comb is, it is prejudicial if it falls over. It should be as firm and as erect as a servant's cockade.

TOULOUSE GEESE FOR EXHIBITION (*An Exhibitor*).—We advise you to put your Geese up in a small building where they can be fed on oats, oatmeal, or barleymeal, gravel, and grass. This should be put in a small trough. They should be fed three times per day, each time as much and no more than they will eat. They will do well in a good-sized pigstye. They should be well littered with clean straw under cover. The food we have mentioned must be mixed with water, enough to cover all the contents of the trough. They require no other water till a day or two before they are sent away, when they may be allowed to go to the water for a good wash. They will get this in a few minutes. They should then be at once driven into their pen, which should be covered with clean straw. When you want to show a pair of Geese you should always put up two pairs for fear of accidents.

ALDERNEY COW (*F. G. M.*).—The hard lump in your cow's udder has no doubt been caused by congestion of the milk veins and vessels, owing probably to inefficient milking, and as it is not tender when touched there is no local inflammation at present. As one quarter yields no milk there is no remedy, and we recommend the cow to be sold, otherwise when she brings her next calf she will be in danger of suffering from milk fever, and perhaps be lost altogether.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.				IN THE DAY.					Rain.
1878. Dec.	Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Mo. 23	29.865	22.7	22.7	W.	33.3	30.8	2 .6	42.4	25.0	—
Tu. 24	30.323	23.6	23.6	N.W.	33.0	31.2	20.7	49.3	16.0	—
We. 25	30.132	28.2	28.0	S.W.	32.7	41.6	18.7	48.6	12.2	0.290
Th. 26	29.442	40.3	40.1	S.	32.8	46.3	28.3	47.8	26.8	0.160
Fri. 27	29.469	43.4	43.4	S.W.	32.7	45.2	38.3	48.6	34.2	0.189
Sat. 28	29.580	41.0	40.2	W.	32.7	47.0	35.6	53.2	29.4	0.112
Sun. 29	29.458	38.8	38.4	W.	33.8	47.1	38.6	58.0	35.0	0.138
Mo. 30	29.472	53.0	51.9	S.W.	36.2	55.2	38.2	66.3	37.6	0.028
Tu. 31	29.538	51.8	49.7	S.W.	39.6	54.7	50.0	72.4	44.4	0.260
Means	29.691	38.1	37.6		34.1	43.3	32.2	54.1	28.9	1.107

REMARKS.

23rd.—Fine bright sunny morning, rather thick in afternoon, very cold starlight night.

24th.—Clear bright morning, with sunshine; thick and overcast in afternoon; very foggy evening, and intensely cold.

25th.—Fine morning, very cold, snow began 1.30 P.M. and fell thickly for a few hours; dark evening.

26th.—Much warmer, rapid thaw with rain; dark overcast night.

27th.—Rain in morning, overcast and dull all day, at times very dark; rain again in evening.

28th.—Moderately fine morning, with glimpses of sun; thick in afternoon, and overcast at night.

29th.—Fine clear morning, sunshine at intervals; overcast and dark at 2 P.M.; rain rest of the day.

30th.—Damp morning, windy; fair until 4 P.M., then rain and wind rest of the day.

31st.—Fine, clear, pleasant, spring-like morning; high wind; rain at 2.15 P.M., rain and gale of wind from 5 P.M. till 4 P.M.; clear bright sky at sunset; rain again after 5 P.M., wind squally in evening.

Intensely cold on Christmas eve, reminding one of the Christmas frost of 1860, but not so cold as in that year. The last two days very warm.

January 1st, 1879 (9 A.M.).—The total rainfall at this station for 1878 is 34.083 inches, being the greatest for at least twenty-one years, exceeding even the extremely wet year 1872; but this excess is quite local, and entirely due to the extraordinary falls on April 10th (2.56), May 7th (1.71), June 28rd (3.28), and 30th (1.13), and August 3rd (1.41 inch).—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 1.

THE supply of vegetables has much improved this last day or two, otherwise our market is very bare and quiet.

WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 9—15, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
9	TH	Royal Society at 8.30 P.M.	41.2	30.8	36.0	8 6	4 9	5 32	8 44	17	9 19	9
10	F	Queckett (Microscopical) Club at 8 P.M.	42.0	30.3	36.1	8 5	4 10	6 56	9 6	18	9 42	10
11	S	Royal Botanic Society at 3.45 P.M.	41.5	30.1	35.8	8 5	4 11	8 19	9 24	19	8 7	11
12	SUN	1 SUNDAY AFTER EPIPHANY.	42.1	29.5	35.8	8 4	4 13	9 42	9 40	20	8 31	12
13	M	Royal Geographical Society at 8.30 P.M.	43.0	29.3	36.2	8 3	4 14	11 5	9 55	21	8 54	13
14	TU	Royal Horticultural Society—Fruit and Floral Com-	42.1	29.9	36.0	8 3	4 16	morn.	10 10	22	9 16	14
15	W	British Museum opened, 1759. [mittees at 11 A.M.	41.7	28.9	35.3	8 2	4 17	0 30	11 27	☾	9 37	15

From observations taken near London during forty-three years, the average day temperature of the week is 41.9°; and its night temperature 29.8°.

NOTES ON GRAPES.

RESPONDING to your correspondent "A KITCHEN GARDENER'S" invitation on page 473 of last volume, I would premise my remarks by saying that, in giving an estimate of the respective merits of the Grapes now before the public, circumstances very much alter cases, and what is a fine Grape under *some* circumstances is a very inferior one in others. For instance, it is generally acknowledged that the several varieties of Muscat of Alexandria have more good points than any other white Grape, yet this grand Grape is one of the most distasteful, it may be said repulsive, when not well ripened. Lady Downe's, too, is not like the same Grape in flavour when grown and ripened in a small, comparatively ill ventilated, damp, and dark house, as compared to what it attains in a very light, dry, airy house. In the latter case I do not know of any black Grape that is better flavoured at the end of February. Those two circumstances in the case of two varieties produce the two extremes of quality in what are really fine Grapes. There are other varieties that, so far as I know, are never found differing so very much unless under very exceptional bad management.

The Black Hamburgh I suppose may be justly considered the finest Grape and the most accommodating and useful in cultivation, and is rarely found otherwise than, to say the least of it, agreeable in flavour. Then there is Buckland Sweetwater and one or two more that are rarely found differing so much in quality as has been referred to in the case of Muscats, and Lady Downe's; and Gros Colman might have been included, for they are as different under certain conditions as is the Muscat.

From the few occasions in which "A KITCHEN GARDENER" and I have ventured our opinions and experience we have generally differed, and in some instances on the Grape question we are likely to differ also. Regarding the Black Hamburgh and the Muscat we are at one. There is no Grape black or white that is so agreeable and useful as Black Hamburgh. It has so many good quality points conjoined with the fact that it can be put on the table from April to February in such condition that no other Grape is preferred to it. The Muscat is a grand, the grandest of all, white Grapes, taking every point into consideration, and the fact of its being so often mismanaged is no argument against it.

What "A KITCHEN GARDENER" says of Golden Queen will, I feel confident, be realised by many. The late Mr. Pearson sent me a bunch of it in February before it was sent out, which corresponded exactly with what "K. G." says of it. I have grown it two years in the cool end of a Hamburgh house, but it has not come up to my opinion of it. Last year it did not ripen properly, and shrivelled long before the Hamburgh. This year it brought fine large bunches to the stoning point splendidly, and then they became a wreck from scalding (as Lady Downe's does under certain conditions), while none of the other Grapes ailed anything. The berries it did perfect were fine in size, colour, and flavour; but it appears to me that this is a Grape that will become much finer in quality with a few degrees more heat than Hamburghs generally do well in.

Madresfield Court I regard as a fine Grape for comparatively early supply, but I have cut it out because nearly every berry cracked here. I blamed our very wet climate for this. If this is not the cause of its failure it must be my ignorance of its requirements otherwise. Waltham Cross I inarched on a Black Hamburgh, but after seeing and tasting it in crop at other places I at once cut it out.

Notwithstanding "A KITCHEN GARDENER'S" sweeping condemnation of White Lady Downe's, I have seen and tasted it in March and April as a good and useful late white Grape. There is no Grape without defects, and the stoneless berry is not peculiar to the two Lady Downe's. It is the weak point of Muscats also. But who will condemn Muscat of Alexandria because when not properly attended to and managed it fails to set so freely as is to be desired?

My opinion of Gros Colman when grown in Muscat heat is already before your readers. It hangs in good condition till the 1st of April, and those who can afford to give it a house to itself or class it with Muscats will come to grow rather more of it and rather less of Lady Downe's.

Regarding Duchess of Buccleuch and Dr. Hogg "A KITCHEN GARDENER" and I are at one. But I am utterly at a loss to understand from my own experience of growing and tasting Buckland Sweetwater at shows and elsewhere how it can be regarded as of fine flavour. I have one Vine of it that brings to perfection fine bunches in July and August, but I am desired not to send it anywhere but to the cook, it being considered not fit for dessert. Black Alicante I had instructions to do away with, and I quite agreed with the verdict; and the same sentence has been pronounced on Trebbiano. If any of the three large white varieties—viz., Trebbiano, Syrian, and Raisin de Calabria are worth growing it is the last named. I have to-day tasted the three varieties, and Raisin de Calabria I consider a good many points in appearance, and especially in flavour, in advance of the others, and I see no use in growing the three. Foster's White Seedling is no doubt a showy useful Grape for early forcing, and as a pot Vine is well worthy of a place.

Regarding the Duke of Buccleuch it is well known that I am one of those who have succeeded in growing it in such condition that no other white Grape is appreciated at my employer's table so long as it lasts, and on that account a whole division is to be devoted to it here. To my own taste there is no Grape to be preferred before it for quality, and this is the emphatic testimony of all who have tasted it here—peer, and I might say peasant alike. I know of no other white Grape, unless it be Golden Champion or Canon Hall Muscat, that has so imposing an appearance in the dessert. Our finest samples of it have been grown in a Black Hamburgh house without any special treatment whatever, and notwithstanding that some may say I am interested in upholding this Grape, I fearlessly say that no Grape is more worthy of having a special effort made to get it to succeed. And if I am asked what special treatment it has received from me, I answer, None whatever that I am

aware of, for it is grown along with other varieties for which, and not for the Duke, are the conditions applied. It ripens in August and hangs till November.

It is a matter of surprise to me in this age of pot-Vine forcing for early supply and the rage for fine Grapes that Grizzly and White Frontignans are so much neglected. Few Grapes force better or come so early to maturity. They are free fruiters, and when well thinned and moderately cropped, the Grizzly especially comes not far behind Hamburghs in size, while the quality is first-rate. Buckland Sweetwater and Foster's Seedling are not to be compared to them. Another fine early pot Vine is Reeves' Muscadine, to my mind far finer in quality than the two last named.

I think it also a pity that the rage for late black, and indeed white, Grapes has so far elbowed out the two finest Grapes in existence—viz., Black Hamburgh and Muscats. There is no use for any other, nor is any other variety to be compared to Black Hamburgh till the middle of February, nor for any other whites than Muscats till a month after that. Gros Colman in the estimation of my employers and my own comes nearest the Black Hamburgh, and for a late white I believe Golden Queen will come next the Muscat.—D. THOMSON.

NOTES ON COOL ORCHIDS.

WHEN the inexperienced see any reference to Orchids they are apt to think that those plants are very difficult to cultivate; many of them, however, on the contrary, are comparatively easy to manage, as I have found by experience. I think this fact should be made as widely known as possible, but at the same time it should be stated that there are a few species of Orchids that will perplex the most experienced.

Without doubt Orchids are the most interesting family of plants grown. Go into an Orchid house at whatever time of the year you may, there will always be one or more species in bloom; and further, the plants possess features of attraction in a marked degree even whilst they are not in bloom. For affording cut flowers either for bouquets, glasses, or personal adornment Orchids stand unrivalled. Some writers have represented that Orchids will endure any amount of sun and air, and consequently that anyone with an ordinary greenhouse might grow them, but it must be borne in mind that the air and sunshine requisite for growing Fuchsias or Pelargoniums to perfection will not grow Orchids; they might linger but not grow, for although they require a free circulation of air they will not endure draught.

In those places where Orchids are a specialty there are different houses or divisions for each class. Those that require about the same temperature are placed by themselves in separate houses, and they are called the East Indian, Cattleya, and Odontoglossum houses, and it is to those that are grown in the latter structure that my remarks chiefly apply. Many think that to have Orchids in perfection they must be grown in a high temperature. There are some that require much heat, but those that are grown in the Odontoglossum or cool house are amongst the most beautiful and lasting of Orchids. 40° to 45° as a minimum with a rise of 5° to 10° in the daytime I have found to suit them admirably, with a proportionate increase as the days lengthen. Orchids that are grown in a higher temperature do not seem to my mind to have that beautiful, fresh, spring-like appearance as do those that are grown cool. The beautiful Masdevallia Veitchiana with its orange-scarlet flowers which are often produced during the winter months, brighten up the house at this dull time of the year better than in the summer, its usual time of flowering. All the other species of Masdevallia should be placed at the coolest end of the house, for they delight in a cool moist atmosphere. They should be potted, if they require it, after they have ceased blooming in the summer, using as small pots as possible, as all Orchids very much dislike being overpotted. Equal parts of fresh-growing sphagnum and fibry peat, with all the finest particles sifted out, intermixed with pieces of charcoal and clean potsherds, form a suitable compost. Keep the crown 2 inches above the rim of the pot and give copious supplies of water during the growing season, but care must be taken not to wet the young growths or they will damp off. Whilst the plants are in the least active state of growth they must never be allowed to become quite dry, as that would be almost fatal to them. The best guide I have found for watering cool Orchids such as Odontoglossums of the Alexandræ type and Masdevallias is never to apply water until the sphagnum commences to look white, but of course they may be allowed to become drier in the winter before water is applied than in the summer. If the sphagnum is kept growing that is a sure sign that the soil is in a healthy condition, without which the plants cannot remain in good health.

The majority of Odontoglossums succeed with the same treatment as Masdevallias as regards soil and water, and to be repotted if they require it when they commence growing; but O. grande whilst as rest requires the soil to be kept quite dry, only sufficient water being given to prevent the pseudobulbs shrivelling; and O. Phalænopsis, O. pulchellum, O. citrosmum, and O. Insleayi leopardinum succeed best in the Cattleya house, treating O. Insleayi leopardinum like O. grande. That useful Orchid O. Alexandræ, if a dozen or more plants are grown, will generally be producing a few spikes of flowers. O. Roezlii will succeed in the cool house during summer, but requires to be taken to the coolest end of the East Indian house from September till May; and the beautiful rosy purple O. vexillarium will also succeed in the cool house during summer, but requires to be removed to the Cattleya house during the autumn and winter months. Great care must be taken not to wet the foliage of this Odontoglot, as water causes it to become spotted. Indeed it is as well not to wet the foliage of any of them more than can be helped, although I have found syringing once a day during very hot weather beneficial to them, and it also cleanses the foliage from dust, taking care to let the water fall gently on the plants in imitation of a gentle shower of rain. Give abundance of air in fine weather, but above all avoid a draught, and only apply fire heat to keep the thermometer from falling below 45°. It is advisable if possible to have air traps along the bottom of the house, one in every 4-foot run, so as to have a free circulation of air underneath the plants, for they greatly dislike anything approaching to a stagnant atmosphere. Great care must be taken to shade them from sunshine, but let them have all that is possible during the winter months. In the summer during hot days I have placed double shading on the roof, but that will be according to the aspect of the house. I have found the plants to succeed best when they are elevated on pots, and to keep an abundance of moisture about the house during the growing season, syringing well between the pots two or three times a day; but care must be taken not to have too much moisture about during the winter. Damping once on fine days I have then found quite sufficient, and on dull days I do not damp at all.

Cool Orchids are very impatient of fumigation, and it is the safest plan to sponge the plants with rain water with very little soft soap dissolved in it, when the least signs of any insects are seen. They are also similarly impatient of fire heat, and I have found that during cold nights it is good practice to let down the blinds, so as to dispense with fire heat as much as possible.

The following is a list of a few of the most useful and beautiful of cool Orchids—Ada aurantiaca; Cattleya citrina, the latter does best on a block with its head pointing downwards; Cœlogyne cristata; Cypripedium caudatum, C. insigne, C. villosum; Disa grandiflora; Lælia autumnalis, L. majalis, growing the latter in the full sun; Lycaste Skinneri; Masdevallia Harryana, M. Lindeni, M. tovarensis, M. Veitchiana; Odontoglossum Alexandræ, O. Andersonianum, O. Cervantesii, O. Cervantesii roseum, O. cirrhosum, O. grande, O. Hallii, O. Insleayi leopardinum, O. nebulosum, O. odoratum, O. Pescatorei, O. pulchellum, O. triumphans; Oncidium macranthum; Pleione maculata, P. Lagenaria, P. Wallichiana; Sophronites grandiflora; Epidendrum vitellinum majus.—A SOUTHERN GROWER.

PARSLEY FOR WINTER.

DURING ordinarily mild winters there is little more difficulty in obtaining a supply of this indispensable herb at Christmas onwards than there is during the summer. All winters, however, are not mild, and that gardener will succeed the best in providing a supply of necessaries in season and out of season by always anticipating obstacles and consequently making provision to surmount them. Failures in the case of some crop or other will occasionally occur notwithstanding all efforts to prevent them, but if the gardener's life is to be a pleasant one let him avert failure in the Parsley supply.

Sowing a crop of Parsley on a square spot that can be covered with a frame, or, what is better, transplanting young plants about July in a similar position, is a wise and prudent preparation for the winter. During severe weather no place in the garden will be more visited than this frame, and no crop will contribute more to the cook's good temper and the

gardener's comfort than a full supply of what in kitchen parlance is termed "double Parsley."

Besides producing a supply of Parsley in the manner suggested, I cannot too strongly impress on all who have a Peach house or similar structure to furnish it in part during the winter with Parsley grown in pots throughout the season, and not potted from the ground in the autumn. By the latter mode more than enough of the herb may be had at a time when it is not particularly wanted, and just when fresh curled leaves are required in the greatest quantity the lifted plants may have turned yellow, or great portions of them have damped-off. Such is never the case with Parsley that has been grown in pots during a great portion of the summer instead of being lifted and potted on the approach of winter.

And how easily may Parsley be produced in pots! For a number of years my mode of procedure has been as follows: At the time of shifting the Strawberries into their fruiting pots in July a number of stout young Parsley plants are taken up and potted at the same time in a portion of the soil prepared for the Strawberries. Any sized pot that happens to be at liberty will do for the Parsley, but 7 and 8-inch pots are preferred. The plants, like the Strawberries, are potted firmly, and are placed in a shaded position for a fortnight, and are then plunged in ashes with the Strawberries. They are then certain of being well supplied with water—an important point. Where there is a suspicion that the soil is becoming exhausted and the Parsley is assuming a pale tinge a dose of soot water is an easy remedy. By the autumn luxuriant pots of fine curled Parsley are produced. These on the approach of adverse weather are placed in frames, and after the Peach house is pruned and cleaned in December the Parsley plants are placed in a row by the side of the path. The house is not heated, so that tender plants are not deprived of the space now so well occupied. This row of Parsley in the Peach house is not only most valuable, but its fresh green appearance is greatly enjoyed. With a clean floor, clean and neatly trained Peach trees, and a newly limewashed back wall a Peach house thus furnished with Parsley in the depth of winter has a cheerful—even an attractive appearance. Of all the crops it is my duty to grow I know of none more easily produced, more serviceable, and more satisfactory than that of Parsley in pots.—D. T. S.

TEA AND NOISETTE ROSES.

I THANK "WYLD SAVAGE" for calling my attention to an inadvertent omission from my list on page 309 of last volume of Tea Comtesse Nadaillac, and to my not including Teas Souvenir d'Elise and Elise Vardon in the same bracket, as I fully intended. The fact was—and I can only plead it as an apology, for excuse I have none—that while my notes had been long written out as the work of some little time and care, the list was written off at the moment to the unexpected music of the postman's horn. Although a somewhat unseasonable topic, I should like to take this opportunity of replying to the observations my article has called forth.

"A KENTISH CURATE" on page 391–2 speaks enthusiastically of Noisette Bouquet d'Or, and seems surprised that I have not added it to my select list. This Rose was introduced, I believe, in 1873, and is, as your correspondent surmises, a seedling from Gloire de Dijon. It is a vigorous climbing Rose, and doubtless with him blooms freely in his light soil, but with us would not be worth growing as an exhibition Rose, although occasionally it is, I know, shown well. "A KENTISH CURATE" must be more than compensated for President growing weakly with him, in being able to describe that glorious variety Perle de Lyon as very robust. I have never seen it so yet except in Rose catalogues.

While I repeat my conviction that no descendant of Gloire de Dijon, including the parent, can be reckoned upon as a reliable exhibition Rose, I thoroughly sympathise with Mr. Boyes in his glowing panegyric on Gloire de Dijon on page 422, and trust he does not class me among those who would run down this most useful, hardiest, sweetest, and—greatest charm of all in my opinion—commonest of Roses. If your correspondent had ever seen the southern front of my rectory festooned for nearly the last two decades with this glorious Rose and his rosy-cheeked daughter, best of all red climbers, Gloire de Bordeaux, as perhaps my old friends Canon Hole and Mr. Peach may even now remember, he would take me at my word. But Gloire de Dijon cannot be said to be "seldom absent from his post," as Mr. Boyes states, as an exhibition Rose, and it was solely in this light that I excluded this Rose from my list. Rather, perhaps, I should say Gloire de Dijon by its earliness and tendency to overblossom excludes itself from the midsummer shows, and when shown appears more as a duplicate of Belle Lyonnaise than in its true, globular, richly coloured, vernal character.

Right gladly do I adopt Mr. Boyes' suggestion of adding Jean Pernet to my list on page 309, especially as it seems to grow much less dwarf than some others in my locality. By-the-by, it will be interesting to the public to know why "WYLD SAVAGE," after describing this variety as blooming with him almost equal to that most tantalising of all shy-blooming Roses Cloth of Gold, does not include it in his list (page 482) of twenty-eight Tea and Noisette Roses! Mr. Boyes wishes for a further confirmation of the good qualities of Madame or Comtesse Riza du Parc. I had several opportunities of forming a correct opinion of this new Rose last year, and I see nothing whatever to find fault with as to its purity. Granted a bloom of this variety would not harmonise with a bride's toilet so well as a Catherine Mermet or Madame Bravy, but in dressing a box of Teas and Noisettes we have that telling contrast in warmth of colour, without muddle and coarseness, which Cheshunt Hybrid so conspicuously fails in. Your correspondent describes that good old variety Madame Margottin as having with him a bad habit of coming with double centres and an ill scent; while he speaks of Madame Berard (evidently not a favourite of his, although it must be surely in the bud) as having no scent at all. This I think is hardly the case, though it must be confessed most Roses would suffer in comparison with Gloire de Dijon. But while on the subject of scent, is it not the case, allowing as one must that some varieties of Roses are more highly scented than others, that scent in a great measure depends on the health of the plant? in other words, that in the delightful perfume that most Roses more or less yield we have the constituent products of those essential oils which are only secreted in any quantity in plants in a perfect state of health.

I was glad to see that "WYLD SAVAGE" was going to add Madame Camille to his family of Teas, for the shape and colour of this variety is so irresistibly lovely, so delicately veined and tinted, that we must go to the French description—"Fleur grande pleine, forme de coupe, rose aurore tendre"—to do its charms full justice. Old Elise Sauvage also, I see with pleasure, "WYLD SAVAGE" has added to his list. This Rose and its duplicate Madame William awakes in me one of the pleasantest memories I have of the past; for round my father's roof tree it flourished separately on high standards on the lawn, and never never since have I seen, or expect to see again, such delicacy and size of blooms combined with a fragrance not lost to me quite even now; but since the disastrous winter of 1860 I have never been able to grow this loveliest and now tenderest of Roses, although I have bought-in plants more than I care to reckon, always with the same melancholy result. I will not bring myself to believe in the scientific or philosophical conclusion of "A. C.," that in adopting the theory of the survival of the fittest we must be benefited in the long run, but hope to hear that the experience of "WYLD SAVAGE" is different to that of—THE HEREFORDSHIRE INCUMBENT.

PASSIFLORA CÆRULEA.

ON the west side of a gentleman's residence at Tenterden in Kent is a very fine plant of Passiflora cærulea densely covering a large portion of the wall, and at the time of my visit (the beginning of last month) I counted a score of ripe fruit and many unripe and half-grown fruit. On inquiry I was told that the plant usually bore fruit in that manner and always flowered abundantly. The growth is only allowed to cover a certain space, and beyond that the shoots were tied back, and so being very thick were a protection to each other. The pruning is done before the spring and after the rigour of winter is over, then only the unripened shoots are removed and the thickest places thinned out. It is that mode of treatment that has contributed greatly to the success of the plant. No doubt the soil is also favourable—namely, a mixture of mortar rubbish, broken bricks, and heavy loam, and the site is thoroughly drained. The position of the roots is rather elevated compared with the surrounding surface. It is seldom that such a fine plant of this Passiflora is seen outdoors, although many attempts have been made to induce them to thrive in even more favoured situations. The plant is covered with mats or some other protecting material during severe weather, and as the growth is mostly made in the latter part of summer, the

plant is covered-up when in full foliage and is not uncovered till all danger from frost is over.—THOMAS RECORD.

ADIANTUM FARLEYENSE.

ADIANTUM FARLEYENSE is generally supposed to be a sport from Adiantum scutum. I cannot at present remember whether I have ever written to raise the question in the *Journal of Horticulture* whether it is not really the barren form of Adiantum scutum.

The original plant was found in a sugar plantation belonging to a Mr. Farley either in Jamaica or Barbadoes, I believe, but I am speaking without notes before me; but I remember one of the first, if not the first, plant in England belonged to a cousin of mine, Mr. Miles at Marlborough, and I once saw decided fertile fronds on a plant which was identical with scutum. Several seedlings were raised by Messrs. Veitch of Exeter from spores of this or other fertile fronds, but they always reverted to scutum. Many Ferns have both fertile and barren fronds on the same plants—take Blechnum boreale, for instance, and Pteris.

What I wish to ask Fern-growers is, Have they ever seen any true plants of Adiantum farleyense with spores on the back of the fronds, and have they ever seen barren fronds on Adiantum scutum?—C. P. PEACH.

ERICA HYEMALIS.

IT would be superfluous for anyone to say a word in favour of the popular winter-blooming Heaths Erica hyemalis and E. Wilmoreana, for are they not manufactured by the thousand in various metropolitan plant establishments, and circulated from thence through the medium of local nurserymen into numberless gardens and dwelling houses everywhere throughout the length and breadth of the land? But it may be almost said of these without much exaggeration of language, that "they come like shadows, so depart," as the rubbish heap as a rule is the receptacle to which they are consigned earlier or later in the years during which they are purchased.

The forcing cultivation to which these plants are subjected has been assigned as a sufficient reason to account for such a high rate of mortality at this early stage of their existence. There is a further point to be noted as most inimical to this class of plants—a phase in their life history, perhaps, impossible to avoid, and that is the changes they are subjected to in the journeys they undergo from nursery to nursery, and again from thence to their final destination. Sometimes the roots are dried up, and anon in a saturated condition; the first-mentioned state being particularly hurtful to the plants in the small pots they are grown and sold in. When they have been neglected in these respects, to a certain extent I have found it impossible to tempt the plants to take hold of a fresh lease of life.

Plants which perform their winter's work and reach spring with healthy roots are not at all subject to perish if properly managed. They require repotting and cutting down to near the base of the previous season's growths, but it is quite possible to proceed with these necessary operations to the detriment of the plants. There is no better time for repotting the plants than during the month of February, and the earlier half of the month if at all practicable. It will depend, of course, on the size of pots occupied by the plants when bought in, what size of pots they are to be shifted into. If in 5-inch pots the necessary loosening of roots round the outside of the ball will cause a 6-inch pot to be sufficiently large for a shift. In the same way a 7-inch pot will be large enough for plants hitherto grown in pots 6 inches in diameter. I employ fibrous peat, with sand and charcoal added, for growing the plants in. The ball should be in a moderately moist condition when the operation of repotting is performed, the fresh soil being in a somewhat like condition—rather drier if anything than the ball. As the fresh soil is firmly rammed in, and the plants are kept in a close structure rather cool than warm, no water will be required till four to six days after potting, then sufficient must be given to moisten every particle of soil in the pot, afterwards keeping the soil in a healthily moist condition. Early in March cut the plants over and allow them to start slowly into growth, as the growth made so early in the season only lengthens the shoots without producing flowers. There is plenty of time during summer for the production of sturdy growth, which ripens as it grows.

Plants that ceased flowering early in January should be immediately pruned and started into growth before being repotted. At the same time it is better to let the plants grow at the points of the flowering shoots than to cut them down before repotting if there is little time to allow fresh growth to be made from the cut-back shoots. As the plants increase in size they become extremely useful, not only as large decorative plants, but more especially as producers of flowers for cutting. From the nature of the treatment I give these large plants, such large spikes are not produced as from young plants; for whereas in the case of the latter, spikes 12 to 15 inches in length are produced and of a proportionate thickness, the numerous spikes of the large plants are only from 4 to 9 inches long. These small spikes when cut are exactly suitable for mixing along with Roman Hyacinths, Epacrises, Schizostylis, and Mignonette, amongst Chrysanthemums, Cinerarias, Primulas, and Geraniums, while in addition to the primary spikes there are numberless sprays of flowers all over the plants which prove very useful for mixing with other flowers in small glasses.

The plants may be kept healthy and floriferous in 9 or 10-inch pots by annually (at the same time the younger plants are repotted) turning them out of their pots, cutting a large slice off across the ball, and just above the drainage. Something like three-quarters of an inch should also be cut off the outside of the ball all round, and the plants then returned into a pot of the same size as the one previously occupied. They require exactly the same treatment as the young plants. Though not a noticeable point it is nevertheless very necessary to keep the plants thinned out. All spray growths likely to interfere with the main growths during the summer season should therefore be cut out. It must also be borne in mind that dryness at the root is very hurtful to these plants. Once allow the soil to become thoroughly dry, and the chances are that when the plants ought to commence growth in spring they will slowly turn brown, and in due time be pronounced as hopelessly beyond remedy—dead.—R. P. BROTHERSTON, *Tyninghame*.

P.S.—I see a new dodge—for it is nothing else—is being practised to make up saleable plants of these Ericas; and the dodge is to pot three plants in one pot, thereby producing a potful fit for decorative purposes very quickly, though to the purchaser wishing to keep on the plants this is a practice not at all likely to meet his views.—R. P. B.

THE FORTY-EIGHT CLASS AT THE NATIONAL ROSE SHOW.

NO class for forty-eight Roses except for the two great champions. Why not? I read the account of the meeting of the National Rose Society at which the Committee decided to abandon the class, only Messrs. Baker and Jowitt showing their forty-eight for the challenge cup. That decision rather astonished me, and doubtless a few other aspirants to fame. Is it not possible to have a class for forty-eight Roses, simply because Messrs. Baker and Jowitt will be unable to compete in the open only for their cup?

Fancy a great show like the National, the Alexandra, &c., and no box of forty-eight to gladden the eyes of the Rose-loving public. I fancy plenty of other exhibitors would be both capable and willing to show well, and in the absence of the giants doubtless plenty of aspirants would come forward.

Again I consider it hits hard the smaller exhibitors, and they have hard work to win in their classes. Take for example the last show at the Crystal Palace; if my memory serves me right there were twenty-four exhibitors in each of the twenty-four and twelve classes; and if the forty-eights are done away with the "smaller men" will have a hard fight. At the last show in most of the amateur classes there were six prizes. Too many: I should not care for the honour of winning a fifth or sixth prize, nor do I believe in any true rosarian being proud of the achievement. I hope others will feel as I do, regret much the abolition of the forty-eight class, and hope the Committee will reconsider their determination. I say let Messrs. Baker and Jowitt show for their cup, and let the forty-eight class stand as usual.—MID-SURREY.

A CHEAP PEACH HOUSE.

SOME twelve months ago I had to build a glass house for the protection of Peach trees trained to a wall 130 feet long and 10 feet high. After due consideration I decided to build it in the form of a lean-to, the end of which is shown (fig. 3), and by the

exercise of all possible care in procuring the wood from a firm having the advantage of saws and moulding tools worked by steam, and all other materials in the most advantageous manner I could discover, and by strict economy of labour, I was able to erect and finish my building at a cost of about 11*s.* per foot run, the back wall and coping being of course excluded, that being already done.

I do not suppose that anyone not thoroughly proficient in the technicalities of building would be able to build so cheaply, for there must be no blundering, no waste of time or materials; yet as a knowledge of details is undoubtedly useful I send some of the most important for publication, in hopes of doing something to promote the application of simple glass structures to fruit culture in gardens where such do not exist. The house is 10 feet high at the back, and 6 feet wide at bottom. The front is a fixture having no ventilators, but with sashbars let into the wall plate and the eave. The wall plate rests on brick piers eleven courses high including the footing, and 9 inches by 18. These piers are 3 feet 9 inches apart, the spaces between having ordinary roofing slates, size 20 inches by 10, set on end edge to edge, and the bottom bedded in the soil of the border as at E E. Height of front from ground line to top of eave plate 3 feet 6 inches.

The roof has fixed panels as at F F, each 5 feet 2$\frac{3}{10}$ inches wide by 7 feet 6 inches long, each panel having four sashbars, one rafter, and five rows of glass, four squares and a half in each row, size of squares 20 inches by 12, quality of glass 21 oz. seconds. The upper edge of the half squares to go into a groove in the hip bar. The ventilators are fixed by hinges along the top of the roof at H, and are opened and closed by an iron apparatus fastened to the hip bar; size of each ventilator 5 feet by 3, and glazed as shown.

A shelf along the front of the house is useful for Strawberries in pots, of which a goodly supply was picked some three weeks before the outdoor fruit was ripe, and also for plants and Figs in pots.

The roofing slates along the front present a sufficiently neat appearance, and do not interfere with the roots running under them into an outer border.

The bricks used were good hard clamp bricks, costing 2*s.* 3*d.*

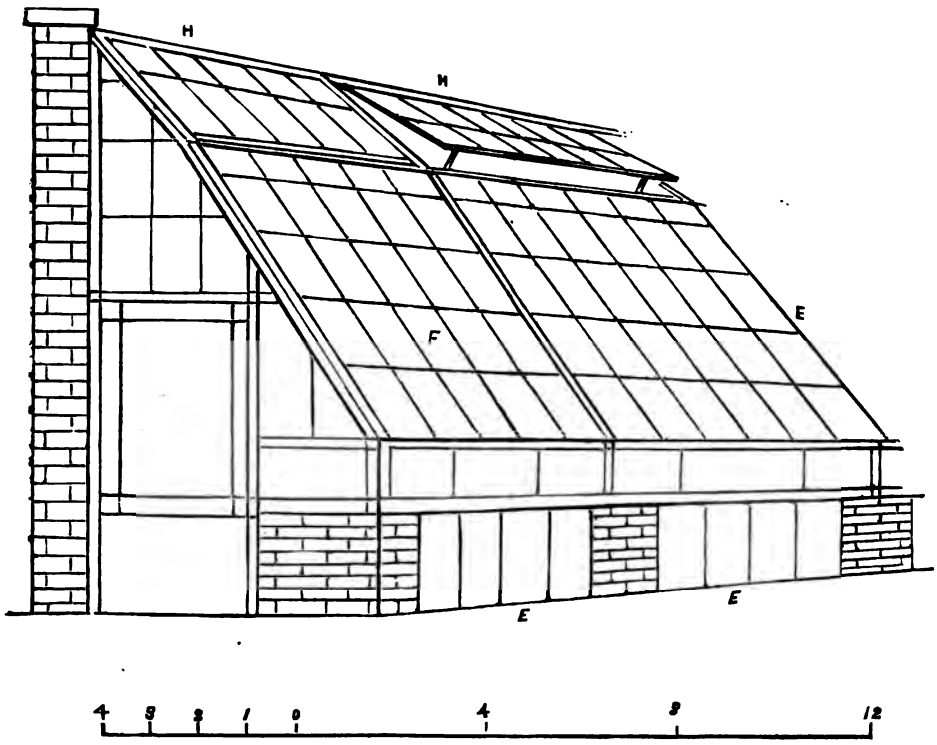


Fig. 3.—Elevation of peach house.

per hundred, and I may observe here that three bushels of new grey lime and eighteen bushels of sand will make enough mortar for five hundred bricks. Each pier took fifty-six bricks.

Objection may be taken to the ventilators on the score of size; but knowing as I do the importance of thorough ventilation, I cannot agree to any reduction of size, and have not only made provision to open them very wide but have used sliding hinges so that the ventilators may be taken off entirely if necessary. This also affords facility for repairs or painting.

The house is unheated, but a 4-inch flow and return pipe connected with a powerful boiler would add materially to its value. This, however, need not be dwelt upon, for the house is so useful without it as in a single season to very well repay the expense of building.—Edward Luckhurst.

SULPHUR versus RED SPIDER.

Somehow in my "Jottings about Vines" I was made to say that painting the pipes would kill red spider. What I meant to say was, with intelligent treatment sulphur would prevent the pest. The second year of my experience I had red spider after my sulphur bungling. I determined, if possible, the next year to prevent it. I remember a young friend calling one night last season just after the Grapes were thinned, when I remarked that I was just going to give the pipes a thin coating of sulphur. "What for?" said my friend. I answered, "Red spider." "I would wait till I had it," said he; when I remarked I meant if possible to prevent it. During last year my house was several times looked over for a trace of red spider, but I never had one insect pointed out to me. With sulphur so strong that it injured my Vines I tried to kill spider but failed—at least I never saw any proof, but I did succeed in banishing it. I concluded if the pest left the vicinity of sulphur fumes it was more than probable it would not encroach where sulphur fumes existed; and without we encourage by extra ill treatment, I believe, after this year's experience, that I am right.

Regarding insecticides generally, I may state as a rule I now go in for pure water; but to syringe the foliage of a Vine, or in any way to touch a bunch of Grapes with water, or with the hand unnecessarily after they are the size of peas unless by accident, or compelled by other misfortunes ahead, I never shall.

Regarding syringing with paraffin I would like to put the question, If by accident or otherwise it comes in contact with fruit—say half grown, can the nauseous taste of the paraffin not be detected ever after? I put the question as a caution,

as some people are apt to rush in where others tread carefully. —J. WITHERSPOON.

SEEDLING BRIAR VERSUS MANETTI STOCKS.

I THINK there is no fear of the Manetti dying-out, except on stiff clayey soils; anyway, the Briar is not likely to supersede it on ordinary garden soils. The fact is that each stock likes peculiar soil—the Briar clay, and the Manetti ordinary loam.

Before your correspondent asked how it was that the Manetti had fallen into such disrepute he should have inquired if it were really a fact. It does not seem like it when Mr. Cranston has carried all before him this year.

What does your correspondent "W. H. J." mean when he tells us that his blooms on the Manetti "were always thin," and those on the maidens "ragged and rough and unfit for exhibition?" Does the Manetti really exercise such influence on the Rose? and do the blooms continue to be ragged and rough, or are these very undesirable qualities fixed only so long as they are budded on the Manetti? When budded back on to the seedling Briar do all the original good qualities return? Has not the little novelty which is attached to the seedling Briar much to answer for?

I bud my Roses on a number of different kinds of stock and can see no influence exercised by them. The old crimson Boursault makes a capital stock, Teas grow well on it, which they do not on the Manetti; it is a tremendous grower, and the cuttings should not be too stout when planted, or they thicken out and become of such an enormous size that they do not work well unless you have large and stout buds to insert on them. There are several kinds of very vigorous Roses of the old semi-double kinds which strike readily and answer well for stocks, but for general work and ordinary soil nothing excels the Manetti.

Will the seedling Briar bear constant removal like the Manetti? I planted out a border of dwarfs on the Manetti last year, took them up again in the autumn, planted them again on the same ground last spring after trenching and manuring, and they have done excellently, shoots of 5 feet being common and some up to 8 feet. Will the Briar bear this? With me constant removal of the Briar means death. It seems to like sending out deep roots into the cold clay and leaving alone; but then it throws up so many suckers they become a nuisance.—F. BOYES.

HEATING FRAMES AND HOUSES BY PARAFFIN STOVES.

AN interesting letter from "F. W.," page 473 of the Journal for 1878, induces me to give the results of my experiments since I addressed you last year (see page 261). "F. W.'s" experience and mine are in direct opposition to that of "J. J.," page 444 of last volume; but as his opinion was formed four years ago, and as he refers to petroleum, it is evident his opinion can carry very little weight, as it is only within the last two or three years that Silber and others have shown how to insure perfect combustion in paraffin lamps and stoves. Moreover, the water-white pure spirit now sold as paraffin, kerosine, or gasoline at 1*s.* and 1*s.* 3*d.* per gallon retail has little in common with the rock oil formerly used; whilst the immense reduction in price, and the cheapness of the lamps and stoves, bring its use within the means of everyone.

It may be remembered that my makeshift lamp and radiator (page 261) for heating Cucumber and Melon frames was of the simplest character, but the long-continued wet weather of the spring and summer convinced me that something else must be done to secure success. First, it was necessary to provide that the lamp could be trimmed or regulated during rain or snow without pulling down the glass and exposing the plants; secondly, that it could be carried in wet or windy weather, lighted from the toolhouse when filled, and trimmed; thirdly, that no glass chimney should embarrass cold or clumsy fingers or be broken by the frost; fourthly, that the wick could be raised or lowered without the necessity of lifting the lamp out of the frame; fifthly, that plenty of air could be supplied without causing excessive consumption, and the wick flame could be seen through a little window in the chimney; sixthly, that the original cost of the lamp should be very little, and yet the lamp be of sufficient size to raise the temperature of a frame with double lights from 2° or 3° to 16° or 18° above that of the external air.

All these difficulties necessitated many experiments, but aided by a practical ironmonger they were not merely overcome, but a lamp produced at a cost of a few shillings—a boon, as I think, not merely to amateurs and small gardeners, but also to large establishments where frames or cold pits are used extensively.

Before referring to the table given below I may mention that late last autumn I erected a small span-roofed greenhouse 14 feet long by 10 feet wide and 9 feet high to the centre ridge. Several of my neighbours ridiculed the idea of my relying upon two small paraffin stoves for heating it, and prophesied the entire loss of my plants if severe weather set in. The prophecy so far has proved false; whilst my friends at the Hall, having had the misfortune about the 10th or 12th of December to burst a boiler supplying two houses, could not get a new one set for many days, and ran the risk of losing all their cuttings during the severe weather of 13th–14th and 23rd–24th of December, when we had 16° and 17° of frost.

TABLE OF TEMPERATURES FOR THREE WEEKS.

DATE.	External Air.		Greenhouse.		Pit	No. 1 Frame.	No. 2 Frame.	No. 3 Frame.
	10 P.M.	Min.†	10 P.M.	Min.	10 P.M.	10 P.M.	10 P.M.	10 P.M.
	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.
Dec. 12	36	21	38	35	38	39	40	38
„ 13	28	15	37	31	37	38	39	39
„ 14	32	18	38	32	38	39	40	40
„ 15	32	22	38	33	38	38	39	39
„ 16	31	20	33	34	38	38	40	40
„ 17	22	21	38	36	38*	43*	43*	46*
„ 18	29	29	38	36	36	43	45	46
„ 19	31	23	38	34	36	45	41	44
„ 20	22	22	37	33	34	43	41	47
„ 21	25	25	39	35	36	49	43	45
„ 22	26	21	37	34	38	46	41	45
„ 23	31	24	38	34	38	46	40	46
„ 24	21	17	38	33	37	42	37	40
„ 25	33	33	38	35	39	44	38	42
„ 26	40	35	40	38	36	47	40	41
„ 27	42	36	41	39	37	45	44	42
„ 28	38	38	42	38	42	42	44	43
„ 29	40	39	45	37	42	43	45	42
„ 30	48	48	48	41	44	46	48	46
„ 31	46	42	46	39	44	45	46	46
Jan. 1	32	28	39	34	38	40	40	39

The greenhouse 14 by 10 by 7½. contains 1090 cubic feet of air. The pit 180 feet. No. 1 frame, 48 feet; No. 2, 90 feet; No. 3, 64 feet. Each frame has a small door cut in the side and hinged, in order to be able to inspect, or regulate, or remove the lamp without exposing the plants during rain or snow.

From the above table it will be seen that a very severe test has been applied to three ordinary frames, one pit, and one small greenhouse, and yet a regular steady temperature has been maintained in all and regulated as required. The greenhouse, containing bulbs, cuttings, Lilies, Maréchal Niel Rose, &c., and the pit containing Richardias, Azaleas, and Verbenas, have been kept at a lower temperature than No. 1 frame, in which Cyclamens, Primulas, delicate Ferns, Cinerarias, and Calceolarias are placed. No. 2 contains cuttings of Pelargoniums, Lobelias, Ferns, seedling Primulas, Carnations, and Cinerarias; whilst No. 3 has Azaleas, Libonias, Calceolarias, Heliotrope cuttings, and Pelargoniums. During the night of the 13th–14th December, when the thermometer here outside fell to 15°, the minimum temperature in the greenhouse registered during the night was 31°—that is to say, with 17° of frost outside I had only provided against 16°. Next night I put in an ordinary dinner-table lamp, and found I could secure 8° more heat; in other words I can insure my greenhouse against 24° of frost, and if a zero temperature were probable any night I can by adding another lamp overcome its effects.

The quantity of paraffin used for the five structures during the most severe days of frost was about five quarts, or 1*s.* 3*d.* per diem of twenty-four hours; when the temperature rose about half the quantity sufficed. Apart from the greenhouse with its two stove lamps I find that each frame lamp consumes about half a pint of oil if burning the whole twenty-four hours at a cost of three farthings per day, taking the price at 1*s.* per gallon.

As there is neither smell nor smoke if the lamps are properly trimmed I venture to think that the question of heating by paraffin is solved, and that a cheap and easy means of heating pits, frames, and small greenhouses is now placed within the reach of all amateur gardeners.

* On and after December 17th Malabar Treloar mats were placed on each of the frames, hence the rise in temperature. † During night.

One caution is desirable: As the lamps soon exhaust the oxygen in the frames, it is absolutely necessary to provide a supply of air by leaving an air hole 2 or 3 inches square at the point where the wood of the frame touches the ground. —E. H.

NOTES AND GLEANINGS.

We have received the SCHEDULE OF THE ROYAL HORTICULTURAL SOCIETY'S SHOWS, and of the special shows to be held under the auspices of the Society during the present year—namely, the shows of the National Auricula Society, the Pelargonium Society, and the National Carnation and Picotee Society. We can only at the present time notice the schedule for the Society's Great Summer Show, which is to open on May 24th and to continue for four days. The arrangement of the schedule differs in some important respects from that of last year. The classes are more numerous, and the aggregate amount offered in prizes is greater, the total amounting in round figures to £680. Instead of one group of plants occupying space not exceeding 300 square feet three groups are provided for, and for which £82 is allocated. Last year there were three classes for Orchids, this year there are four—a class being added for a group of Odontoglossums. The prizes in these classes amount to £98. The prizes for Roses in pots are increased both for nurserymen and amateurs, and a class is added for twenty Tea Roses. The amount offered in these (four) classes is £94. Azaleas remain the same as last year. There is a slight reduction in the amount provided for the specimen stove and greenhouse classes. Only one class is provided for new plants instead of two. The same remark applies to Ericas, and Pelargoniums are reduced in the same proportion—reductions which it must be said are judicious considering the poor competition in these classes last year. Noteworthy additions are classes for not less than fifty Gloxinias, twenty Tuberous Begonias, and thirty hardy herbaceous plants in pots; and also for cut blooms of Ixias and Sparaxis, hardy flowers, and Pansies. The fruit classes are more numerous than last year, but "collections" are eliminated. The usual prizes are offered for collections of vegetables. Mr. Bull offers silver cups for new plants, Messrs. Sutton & Sons gold, silver, and bronze medals for vegetables, and Messrs. Joseph Davis & Co. a five-guinea Royal Polytechnic barometer for nine Tuberous Begonias. The schedule is liberal, comprehensive, and judiciously arranged, and the Exhibition will no doubt be of considerable magnitude and splendour.

—— In order to add to the interest of the Meetings of the Fruit and Floral Committees of the ROYAL HORTICULTURAL SOCIETY during the present season, we are glad to observe that it has been decided to award medals for special exhibitions of the under-mentioned subjects on the dates specified:—January 14th, Chinese Primulas; February 11th, forced shrubs in flower; March 11th, Cyclamens and hardy spring flowers; March 25th, Hyacinths; April 8th, Hippeastrums and Narcissi; April 22nd (Auricula Show), Orchids; May 13th, pot Roses; May 27th (Great Summer Show); June 10th, Gloxinias, Miscellaneous; June 24th (Rose and Pelargonium Show); July 8th, Lilies; July 22nd (Carnation and Picotee Show); August 12th, Begonias and Herbaceous Phloxes; August 26th, Gladioli; September 6th, Dahlias, Asters, and Hollyhocks; October 14th, Tree Carnations; November 18th, Chrysanthemums; December 16th, berried plants. Also, such fruit, vegetables, &c., exhibited on any of the above dates considered worthy of special notice. This is a step in the right direction, and cannot fail to add to the value and attractiveness of these important gatherings.

—— We have received some samples of PEAT from Mr. Epps of various qualities as adapted for the culture of different plants requiring soil of this nature. The samples sent are of undeniable excellence, and as good as we have ever seen for growing such plants as Heaths, Azaleas, Ferns, and Orchids.

—— ALTHOUGH the RICHMOND HORTICULTURAL SOCIETY is still young—just entering on its fourth year—it has by excellent management, distinguished patronage, and extensive support rendered by exhibitors and visitors, made remarkable progress, and must now be regarded as one of the most substantial and important of local horticultural organisations. The exhibitions of the Society which have been held each surpassed the other in extent and excellence, and the Show of last year was not excelled by that of any local society. As the exhibitions have increased in magnitude so also have the subscriptions; the prizes, too, have each year been better than before. Last year medals were provided, and upwards of thirty prizewinners preferred them in lieu of money. Notwithstanding the heavy extra cost of the medal-die the balance in favour of the Society is larger than it has ever been before —namely, £57 1*s.* 2*d.*, against £47 11*s.* 1*d.* in the preceding year. The total income of the Society in 1878 was £624; in 1877 it was £501. For the next summer's Show, to be held on June 26th, special preparations are being made, and it has been wisely determined to hold a fruit and Chrysanthemum show on November 18th and 19th. The special prizes for the present year will include silver and bronze medals presented by H.S.H. the Duke of Teck, who, with H.R.H. the Princess of Cambridge, takes active interest in the welfare of the Society, and visits its shows. We congratulate the Honorary Secretary, Mr. A. Chancellor, on the Society's condition and prospects, and the Society on having such good supporters and able administrators.

—— We have received a letter from Mr. Dodwell stating that while he feels flattered by the remarks of Mr. Slater on page 10 he regrets that his skill as a CARNATION DRESSER should have been alluded to as superior to that of Mr. Turner, to whose instruction he is indebted to whatever part he has attained in the cultivation of the Carnation. Mr. Dodwell, however, while recognising Mr. Turner as being *facile princeps* in floriculture, is still grateful that he (Mr. Dodwell) has benefited Lancashire in the art of dressing Carnations as acknowledged by Mr. Slater.

—— L. J. KNOX, in a communication, says, "I see the Journal is writing against the poor little BUD-EATING BIRDS. I find your recipe of a mixture to the consistency of paint of soot, flowers of sulphur, soft soap, and tobacco juice, applied with a paint brush, laid on thick, quite defends the buds of Pears and Plums from the birds, and does not harm anyone."

—— DURING the late severe weather Mr. Witherspoon informed us that the RIPE GRAPES in his vinery were exposed to 14° of frost, or more correctly that the mercury in the thermometer fell to 18° on the scale. We are now informed that the frost dried up the berry stalks and prevented the Grapes receiving further support. They were consequently cut, but the quality of the Grapes was not impaired.

—— MR. D. THOMSON sends us the following note on the WEATHER AT DRUMLANRIG:—"We had the three coldest nights in succession here on the 23rd, 24th, and 25th December on record. The readings of the thermometer 4 feet from the ground were 2°, 2°, and 1½°. Of course lower temperatures are recorded here, but not such low readings on any three successive nights. The past summer being almost the driest and warmest on record I do not think the low temperature has done very much damage, but the time has not come that will show its effects. The rainfall last year was 40.7 inches, the average of twenty-three years being 49.9 inches."

—— We have received part 6 of vol. v. of the JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY. It contains a record of the proceedings of the Society's meetings from the beginning of May until the end of July, 1878; descriptions of the Exhibitions held at South Kensington and Preston; a continuation of the report of Savoys grown at Chiswick, and some important papers—namely, on "Fungoid Diseases of the Vine," part 4 read at the meetings of the Scientific Committee on April 16th and July 2nd by Dr. M. C. Cooke; "The Native Country of the Potato," read on June 4th by W. B. Hemsley, A.L.S.; "On the Nomenclature of Garden Plants," read on November 19th by Dr. M. T. Masters, F.R.S.; and "On a Disease in the Ash" (illustrated), read on April 16th by W. Wilson Saunders, Esq., F.R.S. These papers are highly worthy of perusal; and the issue, which is edited by the Society's Assistant Secretary, Mr. S. Jennings, F.L.S., gives in an admirably condensed form the work of the Society during the period to which the part refers.

—— MR. ROBERT JORDAN communicates the following readings of the thermometer at Llanaway House, Godalming, Surrey, during the late frost:—December 10th, 10°; 11th, 24°; 12th, 25°; 13th, 23°; 14th, zero; 15th, 17°; 16th, 27°; 17th, 17°; 18th, 13°; 19th, 25°; 20th, 15°; 21st, 26°; 22nd, 20°; 23rd, 10°; 24th, 8°; 25th, 5°. As will be seen, it was the most severe on the 14th, when the mercury fell to zero; and on Christmas day, according to the mode of reference popular amongst gardeners, 27° of frost were registered.

—— THE SNOW ON NOVEMBER 11TH, writes Mr. Peach,

was one of the most curious things of this strange winter, for it varied in depth from 24 inches at Guisborough to only a slight sprinkling at Scarborough (twenty-five miles as the crow flies). Had the snow fallen equally heavily about Scarborough and Hackness our correspondent thinks the county bridge between Malton and Norton would have been washed away, as he has made a rough calculation that what with snow and rain 150,000,000 tons of water had to pass through the tortuous inland watercourses of the Derwent past Malton.

THE GARDENER'S FOOT.

UNDER the above heading in the Journal of December 26th "CYRIL" would have us believe that gardeners are the worst enemy to their gardens. Can this be possible? I as a gardener answer, Certainly not. Can it be that whenever "CYRIL" goes to speak to his gardener his man politely steps on to the flower border? If this is so, I would fain ask, What manner of gardener can he be? We all know there are many so-called gardeners, but few I hope like "CYRIL'S." Men are often engaged because their services can be obtained for less salary than others who are skilled in the practice of gardening. Has "CYRIL" such a man for his gardener?

"It is no new thing," "CYRIL" goes on, "that I write about." It is quite new to me, and I am sure it will be equally new to many of my brother gardeners. That plants are sometimes accidentally trodden on I am ready to admit. It can hardly be expected that when gardeners are working among flowers they can always avoid treading on the tender plants placed under their charge, but to make a practice of it is quite another thing.

Again, "CYRIL" says talking to his gardener is all to no purpose, he still finds him standing on one of his choice border plants. My answer to this would be, that unless this practice ceased his service would not be required any longer. This, perhaps, would have the desired effect, and a real gardener might be obtained who would attend to his master's pets in a proper manner, for I trust gardeners are not numerous who make a practice of standing on flower borders when talking to their employers.—A. J. SANDERS.

I SCARCELY agree with your correspondent "CYRIL" in blaming the gardener's foot doing the greatest damage in a garden. How often it is the foot of someone else that crushes the choice pets, and yet the blame too frequently attaches to the gardener! I am convinced the gardener who feels an interest in his profession is too careful to show the print of his foot on Aquilegias and other choice plants, much less stamping on the flower beds instead of keeping to the walks. Good gardeners like to see every plant and vegetable in perfect trim and order, and deplore the "crushing" of anything under their charge.—HENRY OGLE.

I SUSPECT if gardeners occasionally tread on the pet plants of their employers, that "CYRIL" has stepped on the corns of some gardeners. I confess, as a gardener, I did not like the letter on page 483 of last volume. I felt it conveyed a reflection on a body of men who really do love plants, and I was disposed to write a "crushing" reply, but on reflection I remembered I had been an offender. During the bedding mania when I was a young enthusiast thirsting for fame which, however, I never won, I distinctly remember dealing carelessly if not ruthlessly with many plants that I held in slight esteem, but which I found that my employer valued highly. I was then propagating Indian Yellow Geranium under high pressure, and with this and kindred plants intended revolutionising flower gardening in my neighbourhood. I dug up many an old plant on the sly to make room for the moderns, and I distinctly remember having had to make a humiliating excuse respecting the sudden disappearance of a clump of Omphalodes verna. The truth is, there are gardeners who do not really care for floral nicknacks; they want something which they regard as "really useful," and have no time, as they say, to fiddle faddle over border curiosities. Yet not all, nor half, of the gardeners are as careless as "CYRIL" has indicated. Whatever their tastes may have been twenty years ago, there is now a disposition amongst them to protect, not uproot, plants of rarity. "CYRIL" must understand there are gardeners and gardeners. Perhaps he, like some others, regards every man who works in a garden as being a gardener. I do not. There are many gardeners, too, who would readily and gladly spend much time and pains over a choice collection of border flowers if sufficient assistance were allowed them to keep abreast of all other work of a more utilitarian character. When a man steals a day for what he terms "pottering about" among hidden bulbs and half-buried crowns, and at the same time knows he ought to be in three or four other places, he cannot be expected to cogitate for ten minutes round a Crocus as to where he should set his foot and where insert his fork; yet if he is interrupted in his work and encouraged to "stand talking," much more injury is likely to ensue by the interruption than by steady unchecked work. The flurry communicated to a man by the fidgettings of a nervous master is quite sufficient to cause the death of an invisible Aquilegia. Still, while I would urge some extenuating circumstances on behalf of a gardener, or a man called a gardener, who occasionally steps his foot in the wrong place, I cannot doubt that there are "CYRILS" who have some cause of complaint for the reason before stated, that I have been—AN OLD OFFENDER.

DRESSING CARNATIONS.

IF anyone were really desirous to inflict a heavy blow upon Carnation and Picotee dressing no one could do so more effectually than Mr. John Slater, Cheadle. Will any florist or any judge in their common senses compare the artificial training of plants, when they are grown for exhibition, with the mutilation of a flower after it is taken from the plant? Is there not even now a general dislike to oversticked plants, and to large one-sided specimens as is sometimes seen at even the best shows? noticeably so with many plants at Preston, where all the flowers of the plants were dragged to one side to show their best front to the public, like an old coxcomb rather short of hair pulling his back hair over his bald pate.

Dressing and pruning of plants can never be compared to that of altering the whole aspect and nature of a flower to be changed by splitting the calyx, pulling out self-coloured petals, &c., curling the most highly marked large petals to put them in the most conspicuous position and to hide deficiencies, leaving a sort of orthodox regimental number for the inspection of the judges, and afterwards for the admiration of the British public, who think they see a natural and not an artificial flower.

The public know plants are trained, but the less artificial they appear the more are they admired. The public do not like a Zonal Pelargonium that looks as if it were sat upon; and though they may say, "Oh!" to pyramids of Azaleas full of flower, I doubt if they would not prefer them less formal and with more foliage.

In spite of so many Carnation exhibitors taking up the cudgels against "D., *Deal*," I venture to say a few more letters in defence of the practice of dressing will lead the public to see the prize is not gained by the flowers but by the dresser, and that the Carnations and Picotees had better be classed for the future among the wax flowers or the bridal bouquets, &c.—C. P. PEACH.

EDGING TILES FOR GARDEN PATHS.

"MY edge tiling is shattered by frost, how can I protect it?" asks "E. R. P." They are shattered because, being made of a porous substance, they absorb so much moisture as to be in a state of saturation during winter, and when frost comes this moisture becomes ice, expands and shatters the burnt clay, to the dismay of many others as well as your correspondent, for it is a thing of frequent occurrence. The remedy is obvious. Render the tiles non-porous and an end is at once put to breakage, from frost at any rate. It is a moot point whether this could be best done by a system of glazing them in the kiln during the process of burning, or by two or three coats of paint after they are made and before they are put in the ground. Glazing would be preferable to paint because it is imperishable, but it would not be much liked because of its glossy appearance. Paint, on the contrary, might be made to impart a dry stone-like surface by dusting it with sand before it is dry.—EDWARD LUCKHURST.

HELLEBORUS OLYMPICUS.

VERY free-growing and very hardy, but like all the Hellebores that flower at midwinter is the better, indeed needs the protection of a handlight with moveable top, so that air may be admitted freely in mild weather, protecting only from

heavy rains and snow, with the addition of mats over the lights in severe weather. With such attention the flowers are finer and the plants grow stronger, owing no doubt to the warmth afforded, which accords more to the plant's habitat than our climate admits of. This species does well in pots, the plants being lifted with good balls in early winter, and placed in a light airy position in a greenhouse temperature, and duly attended to with water. Propagation is effected by division, best after the growth is completed and between that and starting into growth. This, like other Hellebores, is impatient of being disturbed, and should therefore be divided as seldom as possible; for though small plants may flower it is masses that fix the eye and arrest the attention of the beholder. H. olympicus delights in moisture, but not stagnant, loamy soil tenacious rather than light, and well enriched with leaf soil and top-dressings of the same. Slight shade in the summer is an advantage.

The Olympic Hellebore (Helleborus olympicus, syn. H. colchicus, H. guttatus, and H. abchasicus), is a native of the Bithynian Olympus, and flowers from December to April, but the date of commencing flowering is determined by the weather. The flowers are produced with the leaves; the radical leaves palmate, segments oblong linear, toothed on the margin except near the base, which is entire; floral leaves large, stalkless, sharply serrated on the upper half. Flowers cup-shaped, white, slightly tinged green; sepals bluntly egg-shaped, persistent, produced on forked flower stems 12 to 15 inches in height, they and the leafstalks mottled (not always) with reddish-brown spots. It differs from H. orientalis in having palmate, not pedate, radical leaves, which are less acute and more finely toothed, in its two-flowered stems, and in its smaller flowers.—G. Abbey.

Fig. 4.—Helleborus olympicus.

A LAWN IN TEN DAYS.

Amongst our neighbours across the Channel, and indeed all over the Continent, the absence of good English lawns, formed of the fine herbage of an old pasture and kept in the best style

of the swards in this country, is a subject of remark by almost every traveller; but in Paris French versatility and aptitude for rapid transformation have enabled the authorities to provide not only speedy but very effective substitutes for good lawns, even in midsummer, when in England, notwithstanding the advantage we have of a less direct sun, the possibility of forming a satisfactory sward would be considered a hopeless task.

When the new road was formed across the Tuilleries gardens from the Place Jean d'Arc to the Rue de Bac the levelling of the adjoining ground was not completed until the 14th of June, when the last portion intended for lawn was smoothed over, top-dressed with thoroughly decayed manure from spent hotbeds, and sown broadcast somewhat thickly with lawn grass seeds, which were gently raked in and afterwards well rolled. The arrasoir (the great secret of verdure in Paris, and which consists of jointed pipes on wheels fixed to hydrants, with which all the public gardens and squares in Paris are amply provided) was then freely and daily applied, and in three days the bulk of the seed had vegetated, showing an expanse of refreshing green. Passing the same spot ten days afterwards I saw that the mower had been passed over and the tops of the seeds taken off. Standing a few yards off I should unhesitatingly have arrived at the conclusion, had I not been an eye-witness of the work, that the sward was the growth of so many years instead of days; and after a few more cuttings the desired object—viz., effect as seen from a short distance, was attained, and a *gazon* equal to the best in Paris was the result, but of course on closer inspection the most unskilled would be soon undeceived; a long time, too, must elapse before a thorough and well-grounded carpet can be secured. Doubtless much of the success is due to the constant attention and careful weeding, rolling, watering, and mowing which our neighbours so effectually give to such matters; but from what I saw I suspect that English energy and English capital have something to do with these magically produced Paris lawns, as the long-continued attention and study given by our principal seed houses to the judicious selection of suitable lawn plants have obtained for them a notable pre-eminence which recent results show they are not unlikely to retain, Messrs. James Carter & Co. of High Holborn having well sustained at the Paris Exhibition the honour and reputation of England in that direction.—T. LAXTON, *Bedford.*

[Messrs. Carter & Co. have communicated to us the following instructions as to how to make a new or renovate an old lawn.]

"The ground should be thoroughly well dug two or three times, during which the operation of levelling is to be carefully attended to, as the appearance of the lawn will be materially affected thereby. After digging, a heavy rake should be used, every lump of earth being well broken and every stone removed, so that at least 2 inches of fine earth is available on the surface. Manure should consist of one-half raw bone meal, one-fourth dissolved bones, and one-fourth pure guano, well mixed and applied at the rate of from 5 to 10 cwt. per acre according to the natural fertility of the land. The manure should be well raked in or blended with the soil. The seed should be sown broadcast and as evenly as possibly, so that the soil may be perfectly covered—lightly raked, and finally covered with a light dressing of leaf mould or thoroughly decayed manure from old hotbeds. A light touch of the roller is recommended a few days after sowing if the weather is dry and favourable. April is the best month for sowing. The seed may, however, be sown at any period of the year when the drought or cold is not excessive. It is a common fault with many when forming a lawn to use too little seed, and we strongly urge the desirability of a liberal quantity being used if a close turf is desired. Four bushels per acre is the quantity required.

"Weeds should be removed on making their appearance and the bare places resown with seed, for which purpose a supply should be always on hand. The young grass should be mown three times with a scythe, and the mowing machine may then be used. Frequent rolling is necessary, especially after rain. A firm tread on the surface is always desirable, and this is readily perceived by walking on the turf. The lawn should be well watered in the evening in hot dry weather, and during such weather too close mowing should be avoided.

"*Lawns under Trees.*—The preparation of the ground is identical with that for renovating, and a special mixture of seeds for this purpose is prepared. Occasional watering and not too close mowing is recommended.

"*The Renovation of Old Lawns.*—The ill condition of many lawns is to be attributed to a neglect of the precautions to be observed in their formation. A scarcity of seed in the first instance is in many cases the only and chief cause, or, where turf has been used to form the lawn, insufficient care has been taken in its selection. The surface should be well raked with an iron-toothed rake to prepare it to receive the seed and the full quantity of manure used as recommended. From one to two bushels of lawn seed should be applied, the seed to be top-dressed, rolled, &c., in accordance with the instructions for forming a new lawn."

ORDERING SEEDS.

MOST people are familiar with what is known as the "early closing movement" as applied to shops in towns. Probably not a few of the readers of your Journal sympathise with the efforts that are made to induce purchasers to arrange their visits so as to permit commercial establishments to close as early as possible for the benefit of the assistants engaged therein. The chief means of attaining the desired end is by the advocacy of the principle of ordering goods early. This is an excellent principle, and may with advantage be applied in our dealings with nurserymen and seedsmen. "Order early" is the advice of experienced purchasers of trees if you want a share of the best produce; and very opportunely the words "order early" may be applied in the matter of purchasing seeds.

Of the many thousands who purchase seeds few can form any conception of the extraordinary pressure that large firms experience during the busy season. It is only by long preparation and extreme effort; by close—too close—work, almost night and day, that orders can be executed in time to enable the seeds to be of service to the purchasers. By ordering seeds early no more cost is incurred by the purchaser, he has the choice of the first and usually the best stocks of seed, and a great boon is at the same time conferred on seed dealers and their assistants.

During the height of the seed season it is absolutely impossible that orders can be executed immediately they are received, and consequently those who do not give the orders before the time for sowing arrives must experience considerable inconvenience. The seedsman is then generally blamed for a want of promptitude, when in reality the blame rests with the purchaser and not with the vendor. In order to facilitate the execution of orders, which become unusually heavy as the spring advances, the great seed firms commence preparations in midwinter, and even before Christmas additional assistants are engaged and men "work overtime" in preparing packets and parcels of the seeds most likely to be in demand. Thus everything that the vendors can do is done to accelerate the dispatch of the parcels with the utmost celerity. Could the seed-purchasing public see the efforts that are made to execute the orders with as little delay as possible, and hundreds of men working at high pressure until almost midnight for weeks together, they would endeavour to make out their orders early; they would then be better served, an important industrial section of the community would be benefited, and the wheels of an important trade would move the more smoothly.—A CITY MAN.

THE CHRYSANTHEMUM CONTROVERSY.

I HAVE studiously abstained from taking part in this discussion up to the present, but now I think the time has arrived when some of the mist that appears to be gathering round the main points of the question at issue ought to be removed. A few facts sometimes dispel a great many illusions, let us therefore see how far they will answer our purpose here. The facts are these:—Some time during last spring a controversy arose between Liverpool and London Chrysanthemum growers as to the relative merits of the system of cultivation pursued in both places, which resulted in the Liverpool growers offering a special prize of ten guineas for a stand of the best twenty-four cut blooms, incurved varieties, to be competed for in Liverpool. The money was subscribed out of compliment to the London growers, to give them a practical opportunity of settling the matter in dispute, and a London judge of thirty years' standing was appointed as one of the judges to make the award. The Exhibition was held, as we all know, on the 20th of November last, when to the regret of everyone a fraud was attempted, which was detected and was duly reprobated, and I hope and trust there is an end to that unpleasant part of the proceedings. But we must not lose sight of the fact that the detection of the fraud did not improve the position of any

exhibitor from a distance, as no stranger had even the shadow of a claim to a place on the prize list. Horticultural gossip on the morning of a show is neither fact nor argument. The battle is a drawn one so far, except that our man did get a place at the Aquarium, even if it was low on the list. Besides, it is acknowledged on superior authority that he set up some of the finest blooms ever seen in London; but not being accustomed to the south country style of exhibiting he did not stand the chance he otherwise would have done. I see we are now invited to subscribe for a challenge cup to be contested for in London next year. We are greatly obliged to Mr. Ollerhead for his generous proposal, but if it will make no difference we prefer meeting on neutral ground—say in Birmingham. It is a common proverb that "he who pays the piper has a right to choose the tune," so I suppose we have a right to a share of the tune as we have to find a part of the money.

I think our duty is clear. Let us turn our attention to the ventilation of the principles which each side think a fair base for judgment, and let it be done in a friendly spirit, so that it will be both useful and instructive. Let all details be satisfactorily settled between the parties interested, and we are perfectly agreeable to subscribe for a prize to be contested for outside of London and its suburbs. A change of air will do both parties good, and I look forward to the completion of such an arrangement with feelings of pride and satisfaction.

Your correspondents Mr. Bardney and "ALLERTON" will, I hope, pardon me for intruding myself into a discussion which they have so ably represented on behalf of Liverpool. I have only done so on account of my more intimate knowledge with the earlier part of the proceedings last year, and now that we have a fair base to work upon I hope there will be no further exuberance of language from any side except what is relevant to the object we all have in view.—W. HINDS, *The Gardens, Otterspool.*

MR. OLLERHEAD says that blooms of Faust and Fingal would place an exhibitor several points behind his opponents with blooms of the Rundle type. If so, the exhibitor is in like danger with blooms of Ossian, Guernsey Nugget, &c., all beautiful flowers, and in our opinion these Drumhead Cabbages as they are termed by our southern friend, when shown in good condition are worthy of as many points as Lady Talfourd, because they break away the formality of the compact blooms of the Rundle type. Further, such blooms as Faust and Fingal require more preparing for exhibition purposes than do blooms of the Rundle type; this may be the reason that southern growers think so much of Lady Talfourd (only a middle-sized flower) for being so compact it requires no touch from the artist's hand to incurve it.

We propose no bloom is shown in the coming contest without its guard petals; these petals bristling underneath the flower we think greatly enhance its beauty. All the south-country blooms that have been shown at Liverpool appear to have had the lower petals removed, and only the top part of what was once a flower shown.

We propose that varieties of the compact Rundle type be not strictly adhered to as long as the varieties are incurved. We consider there is not so much art in growing and showing these compact kinds as there is in the case of such varieties as southern growers object to.

In reply to Mr. Newton I may say, although our south-country friends seem to be impressed with the idea that size of bloom is the only object of the Liverpool growers, I wish to state that size combined with all the good characteristics a flower should possess is the aim the growers have in view. Our ideas of judging are—first, size in relation to the variety; not a large flat flower, but deep in proportion to the breadth, without being overgrown and coarse. Secondly, symmetry of form. Third, colour—that is, brightness and brilliancy in each individual flower, which is absent in poor-grown blooms. Fourth, good arrangement in the whole stand so that the blooms harmonise as much as possible.

It is an easy matter to overgrow a flower, and easier still to remove a portion of the lower part of the flower and to show the centre, which render it the more necessary that every point should be made clear to place growers on perfect equality, so that nothing but good feeling shall exist on both sides, and that justice may be done to all.

As a list of varieties has been given by Mr. Newton to simplify as much as possible the matter at issue it is nothing but right we submit a list of thirty-six names also; and if the Editors will select from the two lists the varieties so named, we submit it shall be those from which the competing blooms shall be selected for the proposed Chrysanthemum tournament. We wonder why such blooms as Eve, Novelty, and Mrs. Heale were omitted from Mr. Newton's list; they are three of the finest formed blooms in cultivation.

We would also propose for consideration that a stand of twelve blooms be exhibited at the proposed show, as well as the stand of twenty-four blooms, and the twelve blooms to be of varieties that our friends called rough and coarse.

And lastly, we propose that the blooms in one class be shown with paper collars, and one class without, as we consider that small collars of a neat pattern considerably improve a stand. All the suggestions relative to the proposed contest shall be duly considered and submitted in these pages by the authority of the Liverpool growers.—W. BARDNEY, *Norris Green.*

MR. NEWTON on page 4 clearly pourtrays to my mind the qualities necessary to constitute a good bloom of Chrysanthemum, and in accordance with such conditions Chrysanthemums are generally judged in the neighbourhood of London.

In reference to a selection of thirty-six varieties I would remark that plants of some that are named may not be readily procurable by either the northern or southern growers, and also that certain seasons are prejudicial to some varieties. I therefore suggest that the selection be extended to forty-eight varieties, which I think will be equally advantageous to both sides.

The following list I submit for your readers' consideration:—Mrs. G. Rundle, Mrs. Dixon, Mr. G. Glenny, Eve, Lady Slade, White Beverley, Golden Beverley, Empress of India, Golden Empress of India, Alfred Salter, Queen of England, Golden Queen of England, Venus, White Venus, Jardin des Plantes, Bronze Jardin des Plantes, Prince of Wales, Princess of Wales, Mrs. Heale, John Salter, Golden John Salter, Barbara, Prince Alfred, Lady Hardinge, Lady Talfourd, Mr. Brunlees, Novelty, Hero of Stoke Newington, Princess Teck, Nil Desperandum, White Globe, Isabella Bott, Mrs. Haliburton, Inner Temple, Mr. Gladstone, Cherub, Duchess of Wellington, St. Patrick, Aurea Multiflora, Golden Eagle, General Slade, Princess Beatrice, Lord Derby, Beauty, Rev. J. Dix, Miss Mary Morgan, Sir Stafford Carey, and Baron Beust. From the above list it must be obvious to all that a stand of twenty-four good blooms can be more easily set up than if the selection were limited to thirty-six varieties.

From remarks that have appeared it would seem that an opinion exists amongst northern growers that growers in the south remove the base or outer petals from the blooms. That is a mistake. I am not aware that any such practice exists, and I have seen almost every collection that has been exhibited for the last three years at the London and metropolitan shows.—J. W. MOORMAN.

[As this list contains all the varieties named by Mr. Bardney except Boadicea, and all those enumerated by Mr. Newton except Plenipo and two new varieties, we recommend it as the basis of the proposed competition. A letter from Mr. Elliott will appear next week.—EDS.]

THE SEVERITY OF THE WEATHER IN THE SOUTH OF IRELAND.

WE are now approaching the end of winter which has not been within the memory of the present generation so severe. No sooner did the winter set in but down came the ice king with unprecedented severity, and with one fell swoop clothed all nature in its mantle of white. This unexpectedly severe weather, coming as it did so early in the season and lying heavily on the trees, brought many a giant bough to the ground especially of the Oak, which it leaned on with no sparing hand, disfiguring many a beautiful king of the forest. The Oak is especially loth to part with its foliage, therefore suffered more severely than any other deciduous tree.

With regard to ornamental shrubs and trees they have no doubt suffered very severely, and more from the nipping frosts than the weight of snow, the frost coming at an unusual season before the young growth had come to maturity, as the growing season continues so long in the south and west of Ireland. A few of the shrubs which suffered most severely were Laurustinuses, Sweet Bays, and Cytisus racemosus, but it is to be hoped that those have suffered only as far as the unmatured wood is concerned.

I am very glad to say that very few of the Eucalyptuses have

suffered here—none, in fact, but those planted in moist, shady places; those in a dry and more exposed situation have sustained little or no injury.

One or two Camellias which we omitted to cover suffered considerably in foliage, and I fear that in consequence they will shed their flower buds. But although our plants and trees have suffered all more or less severely, it is to be hoped that in other respects we shall be able to reap bountifully from the good effects of the late frost.

Last year we had nothing approaching to such frosts, and as a result slugs, snails, and other insects were unprecedentedly numerous; and all who had anything to do with small seeds in kitchen gardens had a most unwelcome experience of the evil effects of these pests. Besides this the ground will benefit from the effects of the frost, especially where the soil was turned up and exposed to the influence of the fertilising atmosphere, and therefore we may look forward hopefully for satisfactory crops during the ensuing season.—ANDREW CAMPBELL, *Muckross Gardens.*

MESSRS. SUTTONS' PRIMULAS AND CYCLAMENS.

A FIRM with so established a reputation for the excellence and purity of the seeds supplied by them as Messrs. Sutton must naturally be anxious to maintain that character by adopting every means in its power to obtain the very best; and, dissatisfied with those that they had obtained from other sources in the flowers named above, which are now so generally grown by all who have a greenhouse, they set themselves seriously to work about five years ago to grow the seed for themselves. A series of houses and pits which had been used for other purposes was converted to this use, and the result has been the obtaining a character of seed which cannot be surpassed anywhere, culminating in the case of the Primula in their Ruby King, which I do not hesitate to say, taking all its points, is the most beautiful Primula that has yet been raised. So great has been the demand for their seed that this year two new houses, perfect models in their way, have been erected, and everything has been done to secure the plants from any extraneous influence. As an example I may notice the manner of fumigation. Instead of having to open and shut the doors, and thus causing, it may be, the pollen to fly about, a place is built in the wall outside communicating with the house underneath the stage. Where this opening is, a slate is placed over. The fumigating pot is put into the place in the wall, the smoke ascends into the house, comes against the slate, and is then diffused all over the house. This plan might surely be adopted in other houses, and a great deal of the nastiness and inconvenience consequent on fumigation would be done away with.

Premising that Messrs. Sutton not only desired to improve the beauty of the flower but also the habit of the plant, I may, having been kindly furnished by them with the particulars, say that from English and foreign sources they had obtained in 1873 seventeen sorts and crosses, in 1874 thirty-seven, in 1875 eighteen, in 1876 thirty, in 1877 seventy-four; in all 176 varieties. Their attention was in the first instance given to P. sinensis alba, which had up to that been more improved than the rubra; and in January, 1875, they fertilised the best white Primula with P. sinensis rubra, hoping by that means to get a more sturdy growth into the red Primula. This was the origin of Ruby King, the seed of which they are now offering. It was flowered for the first time in 1875, and has during the past four seasons been seen in their houses by many experienced gardeners, noticed in the various gardening periodicals, and has been pronounced by all who have seen it to be the very model of a Primula. It has deep magenta-coloured flowers with a bright golden eye and a maroon band round the circle; the head of bloom just rising above the foliage, the leaves being finely cut, the growth short, and the colour bright.

There are four houses devoted to the Primula. House No. 1 contains four sorts of white—namely, Alba Plena, Fimbriata, Laciniata, and Alba with dark stems. In the salmon-coloured class Florence, very beautiful; Splendens kermesina, single and double; and Double Magenta. In the lilac class Marginata lilacina, a very beautifully marked variety, and Alba violacea. The Fern-leaved varieties are also much improved, producing all shades of colour in the flowers, with leaves much shorter and plants more compact. The red variety especially is very fine, having deeply cut petals of a good colour with dwarf foliage. House No. 2 contains only Ruby King for seed. House No. 3 contains only Rubra of the finest selected habit for seed. House No. 4 contains only Superb White for seed. It will thus be seen that by devoting one house to each kind of seed absolute purity is obtainable, and it is a peculiarity of these Primulas that they come true from seed. House No. 5 contains crosses, sports, or selections containing red, pink, white, crimson, yellow, carmine, spotted, edged lavender and rose colour. There are also pits with trials to be proved later on in the season. An experiment was made last year of sowing on April 20th seed of some of the best sorts to see if they would succeed, but it was a failure, the flowers coming small and of a bad colour.

Nearly as interesting are the Cyclamen houses. Here again a large number of sorts and crosses were obtained. In 1874 sixteen sorts and crosses, in 1875 fifteen, in 1876 twenty-eight, in 1878 forty—eighty-nine in all; and the houses now contain vastly improved varieties with colours of every tint, the very purest white and the very darkest crimson; the plants admirably grown with fine short foliage; the varieties of what is sometimes called the giganteum section, but which is really a selected strain of persicum, producing large flowers and with the most beautifully marbled foliage, giving a fresh charm to these flowers. To those who, like myself, can look back on the Cyclamens of former days—(why, I remember one corm that was as big as a soup plate)—and used to have hundreds of blooms, and which might have been grown by old Trussler, but as to getting bulbs you might as well try to get blood out of a Turnip. But new seed sown in August or September will, in little more than twelve months, if treated well as they are here, produce beautiful bulbs with a profusion of bloom, and at a time of year when every flower is doubly valuable. There are four houses devoted to their culture here. No 1 house and pits contain Cyclamen persicum for sale in nine or ten varieties; Nos. 2 and 3 houses contain Cyclamen persicum giganteum in three varieties—roseum album, roseum, and roseum superbum; No. 4 house contains selected plants for seed of Improved Persicum type.

It will thus be seen that every effort is being made by this distinguished firm not only to supply good seed of the present varieties of these flowers, but also by careful selection to improve them; and I think we may expect in future years some valuable additions to both of these flowers.—D., *Deal.*

ROSES—A VOICE FROM WALES.

THE Rose giants have had their say for the year, and I have been much gratified by their criticisms, and I hope benefited by their advice and instruction; yet there are points which have not been sufficiently urged, and others which have not been touched. Upon some of these I crave to make a few observations.

I am a lover of Roses. Who is not? I grow a few—some hundreds, and would like to grow more, but I have never exhibited; and much as I have been gratified by the grand displays at Rose shows, have never felt thereat the same delight as that which springs up when looking at Nature's own exhibition in a garden. The object of all Rose shows should be to stimulate a love for, and the growth of, the flower by all. There is nothing more humanising than a garden, and of all the other charms which a garden unfolds there is nothing to compare with Rose culture.

I in no way disregard the pleasure of growing Roses under glass, and indulge moderately in that luxury myself. But this artificial aid can be applied by a few only, and to a very limited degree even by those whose means are abundant. Those who grow under glass should have classes of their own, and should not compete with "coddled flowers" against those who grow in the open air. Moreover, tender plants which will not bear the varying conditions of our climate should for that reason be disqualified for the general stand at an exhibition. Let them come in as specialties, and they would then be in their proper place. The true object of an exhibition should be to promote the production of plants having all the requisites of a good Rose.

Now, I take it that a good exhibition Rose should satisfy the following conditions:—1st, It should be hardy so as to thrive in the open air in this country; 2nd, free blooming; 3rd, scented; 4th, have a distinct colour; 5th, good foliage and habit; 6th, enduring blooms; 7th, well-formed flowers; 8th, a long period of florescence. A first-class Rose must have all these qualities. Many of them are essential in any Rose, and the more complete each of these conditions is found the more perfect the flower.

Some of these qualities are so absolutely necessary in a Rose

that any plant which wants them should not only be expunged from the Rose lists but should be eradicated. A Rose without scent is a "soulless toy." It might as well be a Dahlia. Again, a tender weakling that dies in the blast, or a plant that will bear only one or two blooms, should be out of the exhibition list. Those who love to indulge in whims may if they choose take these things to their bosom, but lovers of Roses should not be deceived into purchasing these churlish, ungenerous, or tender plants. Unhappily of late form and colour have been accepted as the main if not the sole factors in judging a Rose. That perfection of its form and the richness or delicacy of its colour are needful charms in a Rose no one will deny, but it is a sham to award prizes to Roses that have no other qualities.

In my estimate its "floating fragrance" is the chief charm of a Rose. This it is that gratifies the most sensitive of our organs—

"Dear to the earth its smiling bloom,
But dear to heaven its rich perfume."

I treat an odourless Rose as a thinking child would a beautiful but inanimate doll. Let us, therefore, henceforth make fragrance an essential in Roses for exhibition in the general class. Those who love inanimate flowers, Roses without odour, may have a class of their own distinguished as "Roses without scent." They will be

"Maidens fair to charm the eye,
But without a soul within."

The true lovers of the flower will, however, seek those stands where "winged aromas abound." I would fain make some note upon the other points of a first-class Rose, but will not now occupy more of your space.

May I before closing urge a reform of the nomenclature of Roses? I protest against the absurd fashion of using a sentence as the name of a Rose. I also object to the use of the same name to signify distinct flowers in different classes. Of what possible service can the prefixes Madame, Mademoiselle, Mrs., Miss, and all the rolling cumberness of Madame la Baronne de "something" be to distinguish a Rose? Again we have the absurdity of "Souvenir de la Princesse Amelie des Pays Bas." Why not say "Souvenir d'Amelie?" The particles would be understood, or if they were not it would not hurt the Rose.—WM. SIMONS, *Gwainvarreu, Merthyr Tydvil.*

NOTES ON VILLA AND SUBURBAN GARDENING.

THE old year has departed, and all arrears of work due to the past year should be discharged as speedily as possible; but the mode of procedure depends entirely on the weather, for it is impossible to dig, sow, or to plant when the frost has set its firm seal upon the earth's crust. If the ground is only slightly frozen trenching or digging may be hurried on, but very little frost will stop both sowing and planting. No opportunity should be lost for wheeling manure on vacant ground during clear frosty weather, and if Rose trees and beds have not already received a good mulching it should be given them while the ground is firm and clean. The benefit derived from this winter mulching can scarcely be over-estimated. It protects the roots during the severe weather, and at pruning time it is dug into the ground for their nourishment.

Peas and Broad Beans are among the crops to be sown in the open ground at the present time, but unless the weather should be very mild it would be well to defer sowing for the present. Peas sown at this season are not ready for gathering much sooner than those sown a month hence; yet where Peas are required as early as possible gardeners and others must sow and run all risk of the future weather. Dickson's First and Best and William I. are two good cropping early Peas with very hardy constitutions. Sow them on a tolerably porous and well-drained warm border in rows 4 to 5 feet apart, and covering the seeds about 2 to 3 inches deep with soil of a light nature, and place a covering of ashes over the rows. All pruning of bush and other fruit trees should be now completed. A good dressing of manure carefully forked in around their roots will materially improve the trees where the soil has become exhausted.

Hotbeds and Garden Frames.—No appliances are more useful in any garden, from the very largest to the smallest, than garden frames—one-light, two-light, or three-light wooden boxes, or low brick pits covered with glass. Both kinds answer the same purpose for Cucumber or Melon growing, for the raising of early seeds or the propagating of cuttings, only with the portable boxes the hotbeds can be made up in any place and to any height required before the frame is placed over it. These frames are now manufactured moderately cheaply, and no garden should be without several of them. They are indispensable where forcing is required.

Hotbeds can be made up at any season or time. During frosty weather materials can be readily collected together, and wheeling and carting can be performed without injury to the paths, and it is warm and pleasant work to those that labour. Carefully shake the material over into one large heap. Fresh horse dung should principally be used, but the leaves that have been previously collected should be thoroughly mixed with the fresh manure, which will give a sweeter and more moderate as well as a more lasting heat than dung alone. Having shaken the whole together, allow the heap to lie a week or thereabouts, when the whole mass should be turned, shaking the particles well out as before, and if heated dry it should be well wetted. If time and circumstances permit the heap should have three or four turnings. This preparation is all the more important to the inexperienced cultivator, or he may run the risk of the bed heating too violently and destroying the occupants of his frame.

The most simple method of making a bed is to measure a space about 18 inches larger in both the length and breadth than the frame itself, drive a stout stake down at each corner perfectly upright, which will serve as guides, proceed to build up the bed by shaking the material all over the space until it has reached 4 or 5 feet in height, when the frame should be set on, the front part facing the south. In about five or six days the rank steam will have passed away, then a barrowload of light loam and leaf soil should be placed in hillocks in the centre of each light, which will be in readiness to receive Cucumber plants when these are large enough for planting; while the Cucumber plants are gaining both strength and size the remainder of the same bed may be used for the raising of seeds requiring heat or for the striking of cuttings. Beds can also be made up in a similar manner but with less material for the forcing of Potatoes, Carrots, Radishes, &c. Radishes do very well sown among the Potatoes, and are fit to pull before the Potatoes have made much growth. Veitch's Improved Ashleaf and Myatt's Prolific Potatoes, Early Shorthorn Carrot, and Long Scarlet Short-top Radish are good sorts for present planting and sowing.

CHRYSANTHEMUMS.—Propagate these as soon as strong healthy cuttings offer themselves; the offsets or suckers taken off with a portion of root are the best, but almost any portion will strike readily. Pot them, if strong, singly in 60-sized pots, and if weaker three or four may be placed around the sides of the same sized pots. Place them in a frame out of the reach of frost, but they should not be subjected to any coddling process. A cold frame generally suits them admirably, and a covering of a mat or two will generally be sufficient to preserve them from frost. Place them a moderate distance apart from plant to plant, and regularly throughout the frame.

FUCHSIAS for early blooming and for the making of exhibition specimens should when growth has started be shaken out of their pots, removing as much of the old soil as possible without injuring the roots, and repot the plants into smaller pots. A mixture of moderately light turfy loam, leaf soil, and sharp silver sand forms a good compost for them. When potted place them in a moist temperature of about 50° to 60°. A vinery steadily at work is a very suitable place, and we have encouraged more free and rapid growth by plunging the pots in a bed of fermenting material. Fuchsias like plenty of moisture overhead, but before the roots have taken well hold of the new soil they must by no means be saturated. Cuttings taken off now will if grown rapidly along, make fine plants for autumn flowering.

WORK FOR THE WEEK.

KITCHEN GARDEN.

A SELECT list of vegetable seeds may be useful at this time to some of our readers. Peas, early—William I., Dickson's First and Best, Laxton's Alpha. General crop—Dr. Maclean, Criterion, Standard (Laxton), and Veitch's Perfection. Late—Culverwell's Prolific Marrow, Maclean's Premier, Ne Plus Ultra, and Omega. Broad Beans—Seville Longpod, Monarch Longpod, Improved Broad Windsor. Dwarf Kidney Beans—Osborn's Forcing, Canadian Wonder, and Negro Longpodded. Running Beans—Scarlet Champion; and of Butter Beans, Mont d'Or. Beet—Dewar's Dwarf Red, Pine Apple Short-top. Kale—Cottager's, and Dwarf Green Curled. Broccoli—Veitch's Self-protecting Autumn for use in late autumn onwards; for spring use, Cooling's Matchless, Leamington; late, Model and Lauder's Goshen. Brussels Sprouts—Scrymger's Giant, Imported Seed. Cabbage—Hill's Incomparable, Wheeler's Imperial, and Nonpareil Improved for early; Enfield Market and Battersea for general crop, with Red Dutch for pickling. Carrot—Early Nantes, James's Intermediate, and Red Surrey. Cauliflower—Erfurt Mammoth, Snowball, and Walcheren. Celery, red—Major Clarke's Solid Red (Leicester Red), Williams' Matchless Red; white—Sandringham Dwarf or Incomparable, Wright's Giant. Chicory—Large-rooted Brussels. Cucumber—Telegraph, Paragon, and Tender-and-True, Stockwood for ridge culture. Endive—Improved Round-leaved Batavian and Improved Green Curled. Leek—Musselburgh. Lettuce—Cabbage, Early Paris Market, Sutton's Gem, and Neapolitan; with Stanstead Park for autumn sowing; Cos, Brown Sugarloaf, Alexandra; and for autumn sowing Bath or Brown. Melon—Read's Scarlet-flesh, Bloxholm Hall, Hero of Bath and green-

flesh, Eastnor Castle, Golden Perfection, Dell's Hybrid, and Netted Victory. Onion—White Spanish, Reading, Brown Globe, James's Keeping; and for autumn sowing, White Lisbon and Giant Rocca. Parsley—Fern-leaved. Parsnip—Hollow-crowned Improved. Radish—French Breakfast and Scarlet Short-top, Red and White Turnip being excellent for summer use; for winter use China Rose and Californian Mammoth. Savoy—Drumhead and Dwarf Green Curled. Tomato—Hathaway's Excelsior. Turnip—Early Snowball, Veitch's Red Globe, White Stone, Golden Ball. Vegetable Marrow—Custard and Short-jointed White. Of Spinach Round is the best for summer, and Prickly for winter; whilst of Scorzonera and Salsafy there is no choice. Of Potatoes—Veitch's Ashleaf, Lapstone, and Snowflake; Round, Early Shaw Improved, Rector of Woodstock, and Dalmahoy; for field or late use, Magnum Bonum and Fluke; Paterson's Victoria and Walker's Regent. Of the fancy kinds we make no note.

Give every attention to Cauliflowers and Lettuces in frames or under handlights, admitting air abundantly whenever the weather is favourable, striving to keep them sturdy by removing the lights or tops at 35°, and in wet weather tilting the lights. As soon as the weather is favourable make a sowing of early Peas and of Broad Beans. William I. is the best of the early Peas, and Early Longpod of Beans.

HARDY FRUIT GARDEN.

Where not already completed the pruning of Apples and Pears, such as pyramids, bushes, or espaliers, should be brought to a close as soon as possible. In pruning those trees it is well to bear in mind that some varieties produce their finest blossoms and consequently fruit on the terminal points of last year's growths, therefore pruning-in too closely such kinds is not to be recommended, merely shortening over-gross growths. Where, however, summer pruning, and if need be root-pruning, have been attended to there will be little need for the knife in winter, except to thin out the wood and spurs where too thick, especially in the interior of the trees, for overcrowding often causes the decay of the spurs. Where the spurs are thick and elongated it is well to thin and shorten them, which will afford additional strength to those retained. An overcrop of blossom severely taxes the energies of the trees, and is not favourable to the fruit setting or swelling freely. Pruning and nailing or tying of the various kinds of trees against walls must be proceeded with as opportunity offers, Apricots being best pruned early, as the wounds have time to heal and the trees are less liable to gum than when pruned after the sap is moving. Similar remarks apply to Peaches and Nectarines, although the pruning of these may be deferred some time longer, the trees being loosened and tied at a distance from the wall so as to retard their flowering. Where autumn planting has not been practised, and it is desirable to make fresh plantations, &c., the ground should be prepared by trenching and if need be manuring, o as to be in good condition for planting during next month.

FRUIT HOUSES.

Cherry House.—The house being closed last month as advised, fire heat may now be applied so as to maintain a temperature by artificial means of not more than 40° at night and 45° in the day, advancing 10° by sun heat, ventilating at 50°, and closing at that point. Ventilate very freely in mild weather, and avoid hasty treatment in the early stages of growth. See that trees in pots or tubs are not neglected for water, and sprinkle the trees and house occasionally morning and afternoon in bright weather, seeking to maintain an atmosphere calculated to promote vegetation.

Figs.—Green Figs is a misnomer as applied to well-ripened examples of this wholesome and delicious fruit, but the term is not misapplied when it relates to those insipid and worthless fruits grown under circumstances that do not admit of their attaining perfection; indeed we often see Fig trees occupying positions where nothing else will thrive. Figs are often planted against the back walls of vineries, or grown in pots under or in the shade of Vines. That they will grow and afford some fruit in such positions is undeniable, but they do not bear profitable crops, nor is the fruit at all comparable to that grown in a house where they enjoy unobstructed light. Under good management in a light airy house ripe Figs are excellent and most useful, coming in at a time when fresh fruits are scarce, therefore appreciated. To grow Figs properly a house of the character referred to is essential, and unless for very early forcing the trees are best planted out. A lean-to house answers perfectly, though a span or half-span is equally serviceable, the trees being planted in borders about 6 feet wide and 2½ feet deep, thorough drainage being provided. The branches should be trained to the under side of a trellis at 16 to 18 inches distance from the glass. Good turfy loam with a sixth of road scrapings and a tenth of old mortar rubbish form a suitable material for the border. Brown Turkey and White Marseilles are fine varieties. Trees planted out should be started without delay for affording ripe fruit at the close of May or early June, the border being brought into a thorough state of moisture by repeated waterings, syringing the trees and every available surface twice a day, 50° being a suitable night temperature, 55° by day by fire heat, and 60° to 65° with sun, ventilating at the higher figures and closing at the same. Figs when required very early are best grown in pots. A start now made and early varieties selected will afford fruit in May, affording the trees slight bottom heat in a bed of fermenting materials, the temperature not exceeding 65° until growth takes place, when it may be increased to 70°. Early Prolific, Early Violet, Col di Signora Bianca, Negro Largo, Angelique, Brown Turkey, and White Marseilles are suitable kinds, affording a good succession. It must be borne in mind that Figs grown in pots require plenty of light—all the sunshine practicable, so that they must not be placed in houses shaded by other fruit trees.

PLANT HOUSES.

Forcing House.—To keep pace with the demand for flowers introduce to this structure (a light airy one with means of affording in the severest weather a temperature of 50° to 55° at night, and 60° to 65° by day), such deciduous and evergreen shrubs as have a natural habit of flowering early, of which may be instanced Rhododendrons in variety, Azalea pontica, A. mollis var., A. Belgian vars., Kalmia latifolia, Prunus sinensis alba flore-pleno, Guelder Roses, Deutzia gracilis, Lilacs, Spiræa Thunbergi, Clematis, &c. Of herbaceous plants—Hoteia japonica, Spiræa palmata, Dielytra spectabilis, Lily of the Valley, Pinks, &c. Such shrubs and plants are often forced under Vines or Peach trees, but there is no comparison between flowers produced in the full sun and those grown in shade, the former being much finer and more durable. The plants should be syringed morning and afternoon, and their wants as to water supplied as required, the temperature being kept at 50° at night and 55° by day by artificial means, advancing to 65° with sun heat and free ventilation for the first fortnight, advancing 5° in a fortnight, and 5° in another. Pot-a quantity of Musk and introduce to heat, also Sweet Briar, the fragrance of which is appreciated.

Roses in pots of the Tea section placed in gentle moist heat without pruning will shortly furnish a quantity of useful blooms. It is well to grow many plants of one variety than a great variety in small numbers. Souvenir d'Elise, white; Niphetos, white; Madame Falcot, pale yellow; Monsieur Furtado, sulphur yellow; Madame Chaveret, apricot yellow; Madame de Tartas, rose; Jean Pernet, yellow; Homère, white, tinged rose; Devoniensis, creamy white; Letty Coles, pink; Duchess of Edinburgh, and the good old Gloire de Dijon form a good selection. These should be followed by a second lot, pruned before they are taken into the house. The pruning of Teas should be moderate, confined to thinning out worn-out shoots and shortening back any straggling growths so as to preserve the symmetry of the plants. Some of the freest-flowering Hybrid Perpetuals will, when forced, afford a succession of flowers. Oxonian, Sénateur Vaisse, Thomas Mills, Anna Alexieff, Boule de Neige, Charles Lefebvre, François I., François Courtin, La France, Marquise de Castellane, Mdlle. Marguerite Dombrain, and Madame Lacharme are a dozen good varieties for the purpose. A few Hyacinths, Narcissuses, Tulips, &c., should be introduced to the forcing pit or house at regular intervals. The general stock of these should not be allowed to remain too long in the plunging material, but when the pots are well filled with roots and the tops have pushed about an inch the plants should be removed to a cool house, excluding the light partially from them for a few days, and then placing them near the glass, so as to keep the growth sturdy, drawn leaves and weak flower stems completely spoiling the appearance of forced bulbs.

TRADE CATALOGUES RECEIVED.

Edward Webb & Sons, Wordsley, Stourbridge.—*Spring Catalogue of Seeds and Roots (Highly Illustrated).*

Charles Sharpe & Co., Sleaford.—*Illustrated Spring Catalogue and Seed List.*

Daniels, Brothers, Norwich.—*Illustrated Guide and General Seed List.*

J. C. Wheeler & Sons, Gloucester.—*"Little Book" and Seed List (Highly Illustrated).*

W. Hean, Quick & Co., Barnstaple.—*Illustrated Catalogue of Farm, Garden, and Flower Seeds.*

H. Elliott, Maidenhead.—*Amateurs' Guide and Seed List.*

John George Hill (late John Scott), Yeovil.—*Catalogue of Flower and Vegetable Seeds.*

Francis and Arthur Dickson & Sons, 106, Eastgate Street, Chester.—*Catalogue of Vegetable, Flower, and Agricultural Seeds.*

Thomas McKenzie & Sons, 34, Dawson Street, Dublin.—*Catalogue of Vegetable and Flower Seeds.*

Dicksons & Co., Waterloo Place, Edinburgh.—*Catalogue of Vegetable and Flower Seeds, Implements, &c.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

BOUGAINVILLEA GLABRA (*Poddy Corey*).—Keep the plant dry until March, when prune, or that may not be necessary as the plant is only in an 8-inch pot, but unless the wood be well ripened it is needless expecting flowers.

When the plant has made shoots an inch long turn it out of the pot, loosen the sides of the ball and shift into an 11 or 12-inch pot, using turfy loam with a fourth of leaf soil. The plant will require to be syringed overhead two or three times a day, and to be placed near the glass or in the full light, training the shoots to the trellis, or regulating them as they advance in growth.

BOOK ON GEOMETRICAL DRAWING (*Idem*).— Messrs. Cassell, Petter, and Galpin publish a text book entitled "Linear Drawing and Practical Geometry," price 2*s*., that may suit you.

SEVERE FROSTS (*L. J. Knox*).—You mean the hard winter of 1837-38, or what is called "Murphy's winter," when on the 19th January the thermometer registered at Chiswick 4½° below zero.

PRUNING CLEMATIS (*E. T. C.*).—We can only suggest the plant be taken down from the wall and a selection be made of a few of the best and most matured young shoots, training those thinly and cutting away all the superfluous growths. If you cover the wall with young wood and prevent that becoming overcrowded you will again have flowers; but cutting all the growths off close to the wall would only result in another crop of luxuriant shoots which would yield few or no flowers.

HEATING A PIT FOR MELON CULTURE (*E. H. Dowson*).—It is no use endeavouring to heat a pit with a flue 4 inches square inside, as it would clog with soot in a few days and be practically useless. The flue ought not to be less in width than 7 inches and 9 inches in depth inside, with a furnace 18 inches long, 9 inches wide, and 1 foot in depth. We should take the flue along the front of the pit and back along the centre of the bed, which will afford both top and bottom heat, in which case fermenting material would not be required. We should follow the idea as shown in your section No. 1, but with the flue lowered to the floor, and the flue beneath the bed as shown in section No. 2, but the level of the front flue as shown in No. 1, the bed going up to the back wall of the pit doing away with the wall *d*. The sides of the flue should be surrounded with rubble and brought over the top to a depth of 4 to 6 inches, then a foot thickness of soil, and if 15 to 16 inches of space remain between that and the glass for the plants there is no reason why you should not grow Melons, and winter a number of bedding plants.

CONVERTING A GREENHOUSE INTO A CUCUMBER HOUSE (*C. R.*).—We should form a bed along the front of the house 5 feet in width, with two rows of 4-inch pipes fixed about 1 foot from the floor, filling the bed under, around, and over the pipes to a depth of 6 inches with rubble, and over that place some turves grass side downward, leaving space a foot in depth for soil. You require three rows of 4-inch pipes the length of the house for top heat, one along the front upon the wall of the bed, and the other along the side of the bed in the pathway, which would be at the back of the house. A trellis will need to be fixed at 14 to 15 inches from the glass, and there should be that or greater distance from the surface of the bed to the trellis. The saddle boiler is capable of heating about 60 feet of 4-inch pipes.

PRESERVING POSTS (*Yorkshireman*).—We know of no cheaper and more effectual mode than charring the ends of the posts and subsequently dipping them in tar. Red deal is more durable than white. Our correspondent wishes to know if creosote answers the purpose required, its cost, and how it is applied. We shall be glad to hear from those who have had experience on the subject.

ROSES FOR POTS (*A. G. R.*).—The mode of culture you propose is good, but you will find great difficulty in producing good blooms of Hybrid Perpetuals at Christmas. The most certain mode of having Roses at that period is to grow Teas and flower them in a light warm house or pit. The following are a few of the best Roses for pot culture—*Hybrid Perpetuals:* Jules Margottin, Marie Rady, Général Jacqueminot, Victor Verdier, Marquise de Castellane, Miss Hassard, Madame Lacharme, Duke of Edinburgh, Edouard Morren, Maréchal Vaillant, and La France. *Hybrid Bourbon:* Souvenir de la Malmaison. *Teas:* Duchess of Edinburgh, Cheshunt Hybrid, Madame de St. Joseph, Safrano, Isabella Sprunt, and Madame Falcot.

CUCUMBER ROOTS DISEASED (*G. P. T.*).— Your plants are undoubtedly affected with the "Cucumber disease," which is caused by the presence of minute worm-like infusoria called vibrios, creatures common in decomposing infusions, &c. Mr. Smith finds the nematoid worms in all parts of Cucumber plants when suffering from disease. He has even found them in the cotyledons, and believes them to be the same species common in the juices of dung, in impure (and apparently pure) brooks, in mud by stream sides, and in rain. They are very small. They are supplied to the Cucumber plant in the manure, the manurial waters, or even water from brooks. They speedily eat into the root fibres, and there lay their eggs. The eggs are soon hatched, and the new family eat away further up and more eggs are laid, and this goes on till the whole plant is destroyed. We know of no remedy, and can only repeat the advice given to a correspondent last year—namely, to attempt applying a remedy to Cucumber roots badly affected with excrescences is to waste time needlessly. Raise fresh plants from seed, not from cuttings of the affected plants, which destroy. Remove the whole of the soil, give every part of the interior walls a thorough dressing with hot limewash, scour the whole of the woodwork, close the house, and fill it with fumes of sulphur; then put in some fresh sweet soil, and your fresh plants will probably prove quite healthy; but we advise the exercise of due caution in the subsequent selection of soil.

HELLEBORUSES (*B. D. and Others*).—Some notes on H. olympicus will be found in another column, and notes on some other species of those hardy and increasingly popular winter-flowering plants will appear in subsequent issues of the *Journal of Horticulture*.

PLANTING ROSES (*H. R.*).—You had better allow the Rose trees to remain unpacked during the frosty weather, and as soon as a thaw sets in unpack them, dig a trench and lay their roots in it, covering them well with soil. The stems will then be in a slanting position, and can easily be covered with mats or straw in the event of a recurrence of severe frosts. We should not plant the Roses in their final positions until February, and not then unless the weather were mild. They will receive no injury by being "laid-in by the heels," provided they do not remain after fresh white rootlets are produced by the older roots.

ORCHIDS NOT THRIVING (*Rosa*).—Your question is rather vague. We imagine your plants are starved by want of moisture, but it is just possible you have an escape of sulphur from your flues. If you give us more particulars shall be pleased to answer more explicitly.

PLANTING BORDER FACING NORTH (*J. T. A.*).—In addition to the flowers you name, Polyanthuses, Auriculas, and Pansies would thrive admirably in such a position, as also would Roses. In addition to the vegetable crops enumerated we have found such a border valuable in summer for Lettuces and Radishes, and not less useful for late Strawberries. For the crops named the soil must be good, and the border must not be overshaded with trees.

FORCING KIDNEY BEANS (*E. Lyon*).—A box or trough of the size you name will admit of two rows of Beans, from which the produce will be greater than if you grow the plants more closely together. The high day temperature for Peaches to which you refer is permissible when accompanied by abundance of air and suitable moisture. The heat is, indeed, often exceeded on walls in the open air. You cannot have more sound advice on forcing Peaches than that given from time to time in our "Work for the Week" column.

PRICE OF WALNUT WOOD (*Zero*).—We are unable to answer your question. The price, we presume, varies in accordance with the quality of the wood. A timber merchant would be likely to afford you some information on the subject.

PLANTS FOR BACK WALL OF GREENHOUSE (*Cranfordian*).—Jasmines and Roses may answer if the wall is not shaded. Of Jasminums gracile and grandiflorum, Roses Maréchal Niel and Niphetos. If shaded, Camellias would be the most suitable.

MELON CULTURE (*A Subscriber*).—Your disaster last year was due to a deficiency of water when the plants were swelling the fruit, the supply of water requiring to be copious, two or three times a week after the fruit is set and swelling freely, and should be continued until the fruit is full-sized, and then a lessened supply, ceasing watering altogether when ripening commences. The cracking of the fruit would be induced by the after syringing, especially if it was practised when the fruits were ripening, they then requiring a dry atmosphere. As to pinching, it is necessary that half a dozen or more blossoms be operated upon at one time, and that the shoots or laterals upon which they are borne be stopped one or two joints beyond the fruit, following-up impregnation day by day until three or at most four fruits upon a plant are set and commence swelling, when any above that number should be removed. The soil is too rich, loam without the dung and leaf soil is suitable, and if rather strong all the better. Except when setting and ripening, Melons require as much water as Cucumbers. If you follow instructions as given from time to time in "Work for the Week," you will succeed in the culture of Melons.

NAMES OF PLANTS (*J. F. C.*).—2, Linum trigynum; 3, Skimmia japonica. We cannot name plants with leaves only.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

THE LAYING-OUT AND DIVISION OF PARK OR PASTURE LAND.

HAVING in a former article alluded to the mode of management of park and pasture land we now propose to consider principally matters belonging to the laying-out and division of pasture and meadow land upon the home farm, and as we find that the situation of home farms are so various throughout the kingdom we shall refer to grass land under varying circumstances. The size of the farm must of course influence us in setting out the size of the enclosures. Upon small farms, and particularly in exposed and bleak situations, from six to ten acres, and upon large farms from ten to twenty acres, we consider the best size for the enclosures. We do not intend, however, to enlarge upon the subject by alluding at any length to the chalk hill down pastures in various counties, as there are seldom any fences required for them, with the exception of the fence where they join the enclosed lands. These fences should be of quick or whitethorn, in order that the shepherds may have only to mind and take care that the sheep (which are the only stock usually fed there) do not trespass upon adjoining liberties where no fence exists, and the boundaries of the properties or occupation are only marked by boundary stones, which are sufficient, because the sheep being under the shepherd's care during the daytime are commonly folded upon the arable land at night. It is extremely difficult oftentimes to obtain and maintain a good thorn fence upon the thin soils, such as chalk or gravel. We therefore recommend that in planting whitethorns upon such soils a trench at least 2 feet wide and 2½ feet deep should be dug and filled-in with the best loamy or turf soil to be obtained; this as it decays will form a nourishing foundation for the young plants. We have obtained capital fences by this mode of setting, where the soil has been quite barren, without any mould whatever in its composition. This plan will suggest itself as useful to the home farmer in planting under any circumstances where a thorn fence is required, and where the soil is unequal to sustain a fence strong enough to resist cattle and horses upon the various enclosures of the farm.

The question of fencing is of so much real importance that we must here allude to it under various forms. We will take first

the stone brash soils in various counties and districts. In this case the fences are often made of the flat stones laid into the form of a bank, sometimes with and often without any live fence at the top, but in exposed situations it is well to have a live hedge, which may be kept trimmed. If it can be proved from experience that thorns will grow, well and good; if not, a gorse fence will answer, as it comes quick by seeding, is very hardy, and will thrive upon all dry situations, and may be kept within bounds by constant trimming. For the outside fences for parks, &c., a plain stone wall of a good height is sufficient, but according to levels; from 6 to 7 feet will be generally an effective fence. In the absence of sandstone a capital fence or wall is made in various districts where the soil is a strong stony loam, with the rugged flints obtained from the land, and usually laid with strong mortar filled-in with tenacious clay, which, when properly worked and puddled for the purpose, is almost as binding as mortar. The great advantage of walls, either for enclosures or boundary fences, is that the material is always available upon the spot, and therefore a labour question only as regards repairs. We notice in many cases that the boundary fences of parks, home farms, &c., are composed of cleft oak, but these will not bear comparison with stone fences, as large quantities of saleable timber are used with heavy labour expenses attending, and continuous repairs are required. In some of the weald districts of certain counties this is, however, the only available material except bricks; and although brick walls are expensive at first, yet in the long run they answer, because when properly built they require no repairs for generations. We know various instances where parks have been enclosed with brick walls about 7 feet in height, with a well-made coping brick at the top, and are considered models of enduring boundary fencing.

In alluding to some of the fertile pastures of the vales in different counties we find that the land lies so flat that, although it is desirable to have live fences without ditches, yet it cannot always be so arranged, because large quantities of water cannot be let off in any other way, and particularly when underground draining has been done, and the ditches being the only outlet they are almost necessarily kept open. Even in cases where the ditches may be filled-in with tile drains, still when near to a live fence the roots are sure to stop the drains. Sometimes it happens in low-lying meadows without roadways that they lead only from one through others. This is very objectionable, because in winter time in particular the cattle tread the land in passing and do much injury. We therefore recommend that in all cases where practicable a drift way should be maintained, so that some of the meadows may be laid up for hay when required, whilst others may be fed by cattle with advantage. In the enclosures of pasture land timber is usually admissable, and is in repute for affording shelter and shade. We do not coincide with this idea. When cattle require either shade or shelter they are best under cover for a few hours, because we view it as a manure question; at any rate trees should never be retained near the live fences, as they cannot then be kept without gaps, which, although stopped by rails, are unsightly and often out of repair.

Paddocks or small enclosures near to the home farm premises are very useful and desirable, and if they vary in size from one to two acres several of them would be found advantageous as a turn-out for calves, colts, or sick animals, &c. Where poultry, and particularly turkeys, are kept these paddocks make a good run for them. The fencing should, however, be very strong, and particularly if the enclosures are used as a run for breeding sows. Where materials are not at hand for stone or flint walls a strong well-grown thorn hedge is absolutely necessary. It often occurs that the orchard of the farm is kept in turf, and used as a turn-out for calves, sick ewes, lambs, &c.; but apple orchards seldom answer, except for the coarser sorts used for rough cider. We prefer to cultivate the orchard or seed it to lucerne unless the trees stand very close together. The old trees, however, may be greatly assisted by paring with a sharp spade round the stumps of them for about 3 feet, and stifle burn the turf and spread the ashes round the trees. This will encourage fresh rootlets.

The shape of enclosures is often very irregular, and whenever it is possible the fences should be made straight, as they then occupy less land. Where pastures adjoin woodlands it is of the utmost consequence that the fencing be proof against live stock, to prevent injury to the woods by the bite and spoil of cattle. Here again a thorn fence trimmed is very essential; but to obtain this it is necessary to avoid the effects of timber. We therefore in such cases advise that no trees be left within 40 feet of the outside, so that the quickset hedge may grow like those we often see at the sides of railways where it passes through woodland. In some cases, however, a thorn hedge cannot be raised without a ditch where the land is wet, or from other circumstances; a bank is then necessary, but we always avoid it where possible. In the fencing of low meadows, especially in peaty soils, it is difficult to raise thorn hedges without employing strong loamy earth to plant them upon, we therefore prefer to use and plant strong withy stakes placed across each other. They will be sure to grow, and if the right sorts of withy are used the trimmings may be used for basket-making, and this makes the strongest live fence we know of where the soil is wet and cold, and it is particularly desirable in fencing water meadows. The irrigated meadows may be considered within the heading of our subject. As, however, we intend at a future time to treat of irrigated grass land, both of catch meadows and water meadows, and the mode of laying-out, &c., we defer further remarks at present.

The division or partition of park land for the facility of separate feeding and management is worth our attention, because for appearance as well as efficiency some light fencing only can be allowed. Wire is often used, but we do not find it sufficiently strong for cattle, and sheep will often push through when it gets slack, and it requires almost constant attention to keep in repair. We recommend in preference an iron fence with flat bars. These are expensive at first cost, but require little or no repairs, and are very effectual, because the cattle are never deceived, the bars being a more visible object than wire, and this circumstance will not only prevent damage to the fence but also serious injury to cattle, &c., which often happens with wire fencing.

Roads through park land, either for pleasure or traffic, should be made quite rounding, so that they may always lie high and dry, and when repairs are required the material should be placed only in the centre of the road, as it is sure to settle to the outsides more or less. When either park land or pastures are laid out they cannot be considered complete without water being available either by ornamental ponds or running streams or brooks; in any case the ponds or approach to rivers should be made safe for cattle for drinking purposes, and for the information of our readers we refer them to the description and also illustrations of pond-making, &c., given in this Journal May 2nd, 1878, page 346.

In conclusion we must remark that there are many instances in various parts of the country where the interests of all parties concerned are greatly injured by crooked and irregular boundaries, and the remedy must often be difficult of accomplishment, because it often happens that adjoining proprietors cannot agree to alter the boundaries by reason of the property being of different tenure, and sometimes situated in different parishes. There are, however, now great facilities offered for the exchange of lands by the late Enclosure and Exchange of Lands Act, certainly one of the best parliamentary enactments of modern times, and calculated if carried out to the fullest extent to greatly benefit landed proprietors throughout the kingdom.

WORK ON THE HOME FARM.

Horse Labour.—It is now somewhat difficult to find work which shall employ the horses with profit or advantage. It therefore only remains to consider how any spring work can be forwarded, in order that all the horse labour may be available when the seed time arrives. This being called the dead time of year any carting of corn which has been lately threshed should now be done, also by anticipation we should calculate how much guano we shall require for potatoes and mangolds, so that when the time comes for using it the tillage of the land will not be delayed by fetching the manure from the town or railway station as the case may be; at the same time if this matter is attended to now the guano may be broken fine ready for use, and thus set the hand labour free for other important work at the spring seed time. We have sometimes when obtaining our guano from a manure factory had it broken and crushed in the powerful bone mill driven by steam power. A store of oil cake also may be purchased and brought home, so that it may be properly broken and put by for use, and we should make a calculation as to how much of it will be required for the fatting bullocks, and the ewes and lambs, also the fatting sheep. We have generally obtained our oil cake from the factory broken fine, for it will be remembered that we have always advised the giving of oil cake in the meal state mixed with the roots in feeding all sorts of cattle and sheep. The beans and peas also may be purchased if enough has not been grown for the requirements of the stock on the home farm, and these also will be reduced to meal for feeding purposes. Upon every home farm of any considerable extent a small steam engine of about four or six horse power may be used for every kind of chaff-cutting and grinding food for cattle. In the absence of steam power horse gear may be used driven by one or two horses, which when properly connected with the cutting and grinding machinery will be found very serviceable, especially when the gear and the machines are obtained from the best makers. The samples of seed corn required may be now looked over, and if there is not enough grown upon the home farm, and in case there may be enough, it is wise to have a change of seed of all sorts of corn occasionally, at any rate about once in two years. Great care, however, must be taken to obtain seed corn free from weed seeds. The carriage of seeds, &c., will take up a little of the horse labour, so that when seed time arrives the full horse power of the farm will be at liberty for tillage purposes. At this dull time for horse labour all the carting of earth may be done with advantage, and when properly heaped it will be in readiness for use in the cattle pens, yards, &c., at all times. Whatever earthy materials, such as road-scrapings and roadside earth can be collected, will not only be useful as above named, but its collection and cartage will serve to give the farm and premises a neat appearance—an important

point in the estimation of gentlemen and home farm proprietors in general, besides giving the home farmer a claim to being a thoughtful manager.

Hand Labour.—In all those cases where dung has been laid out during the late frost it will require to be carefully spread. The same remark applies also to chalk and to earthy composts which have been laid out upon the pasture and park lands; also it should be noticed after heavy rains where any water lies in the furrows in the fields sown with wheat, because it should be immediately let off by making out the furrows with the spade in all those cases where the earth and sand has collected. At the same time it should be taken notice of if any portion of the fields are too wet, in order that when the month of March arrives the underground draining required may be set out, that being the best month in the year for that purpose, the wet spots being more visible than usual where the first drying winds occur after the heavy rains peculiar to our climate in the month of February. Women and lads may now be employed in various ways. When the weather is rainy they may prepare roots for the cattle in the cattle sheds and stores, and when the weather is open they may be taking up and preparing roots for the cattle in the open field. This work should always be done before it is required in order that the weather may not interrupt the system of feeding, because when sheep have been fed with cut roots in troughs they will be almost starved to be obliged to eat the roots off the ground in the old-fashioned way. Hay for the sheep and straw for the cattle should be trussed out of the rick as required for fodder, because in winter time it is never so good and enticing to the cattle as when taken direct from the rick; the hay, especially when good, will have all the aroma about it which makes it so sweet and good for sheep.

POULTRY IN 1878.

The old year is gone and has only left its memories. It is not uninteresting and not unprofitable to gather-up these. They may be useful in the poultry yard as well as in the greater concerns of life. Then, as we said at the opening of last year, all seasons are not the same, and this variety, this chance in the pursuit of rearing feathered stock, adds much to its charms.

The past year has on the whole been a favourable one for the fancier. It opened well with seasonable weather. In January last we expressed a hope that spring might follow and not precede winter. So it did, and a real spring it was—one of the springs of poetic description, and not a "still sharper English winter," with blighted blossoms and frost-nipped flowers. There was a singular absence of those terrible periods of dry east wind which most of us dread so much. All this was well for the young chickens; they had few checks, and throve apace. A long and beautiful summer succeeded with few of the ordinary breaks, and those chiefly not of cold but of rain, which in most situations is rather favourable than otherwise to the growth of young poultry. The result was that the early shows were well filled with finely developed birds of the year. At last the summer went altogether, and was followed by one of the sharpest autumns and early winters we ever remember. Poultry have suffered much. Many of those exhibited at Birmingham looked cold, stricken, and miserable, and we expect to see bad and manifest results of the late frost at the winter shows. We are among the number of those who have much faith in the excellence of chickens hatched from April to July, and year after year have watched through genial Novembers and Decembers our own summer birds passing their earlier brothers and sisters and developing into the pride of the yard. This year, however, our calculations have been entirely upset; the younger birds stand still and are stunted, while those hatched early look like old cocks and hens. Possibly mild weather may be in store for us, and then the later birds may make a fresh start in growth. Should, however, the frost return we shall expect to see the chicken season of 1879 a late one. Cold and frost-bites have thrown back the breeding stock, and eggs consequently will be scarce and probably many of them unfertile.

There are other things besides the produce of the year which interest the fancier. We live in an age of competition and rivalry, and be their stock ever so good the majority of breeders are not content unless they can descend into the lists. The great event of the year's contests has been the International Show in Paris. Its lessons and warnings have not been few. So arbitrary it would seem are the standards of ideal beauty in birds, that there is a hopeless difference between the taste of the two great poultry-breeding nations—the English and French. At the risk of being accused of insular prejudice we venture to assert that there is far more to be said for our own standard of beauty than for those of the French. On the other hand, they have a keen eye to utility, and their breeds which are *par excellence* those of the table surpass ours in some useful qualities, and are, it seems, reared on a far larger scale than has ever been attempted with any success in this country. As to our own exhibitions, no very noticeable change has taken place during the past year. We have at various times deprecated over-competition among shows and overshowing. In both these respects we have observed a marked improvement. Instead of four great metropolitan shows only two have been held during the year, and in many cases committees have wisely postponed their shows, or given way to others in time, and so saved foolish rivalry. The evil of overshowing is naturally remedied by a reduction in the number of shows.

Artificial hatching has received a new impetus from the introduction of several new incubators both from France and of home invention. The memorable incubator tournament at Hemel Hempstead has led the way towards a fair comparison of their merits, and has shown that a great measure of success may be obtained with at least one instrument if only intelligent care be given to it.

The vague and general outcry there has long been against improper and dishonest preparation of birds for show has, as we lately pointed out, taken a definite form in the past year. The Poultry Club, which was but in process of formation this time last year, with, among many objects, the chief aim of checking trimming, has become a power, and we have good reason to think an increasing one, which will if judiciously managed render good service to fanciers in general. Poultry judges are taking courage and fearlessly exposing things which they would formerly have passed by in silence. We congratulate every genuine fancier on this prospect, and trust that an innocent and gentlemanlike amusement will so be freed from the whisper of disrepute which had begun to spread concerning it.

Such, briefly, are the general features of the past poultry year as they have appeared to us. We shall return in future numbers to the special progress to be traced in the various breeds.—C.

BIRMINGHAM COLUMBARIAN SOCIETY'S SHOW.

The fourteenth annual Show of Fancy Pigeons was held at Cave's, Moseley Street, Birmingham, January 3rd, when the following prizes were awarded :—

PIGEONS.

YOUNG BIRDS.—CARRIERS.—*Black.*—1 and Cup, W. G. Hammock. 2, 3, and *vhc*, T. Hallam. *Dun.*—1 and Cup, T. Hallam. 2, W. G. Hammock. 3, J. T. Holmes. *Any other colour.*—1, 2, and 3, W. G. Hammock. POUTERS.—*Blue.*—1 and Cup, J. H. Smith. 2, H. Pratt. 3 and *vhc*, J. T. Holmes. *Black.*—1, J. T. Holmes. 2, H. Pratt. *Red.*—1, C. F. Herrieff. 2, H. Pratt. *Yellow.*—1, H. Pratt. *White.*—1 and Cup, J. T. Holmes. 2, H. Pratt. 3, J. R. Spencer. *Any other colour.*—1, H. Pratt. 2, J. T. Holmes. TUMBLERS.—*Almond.*—1, M. and A. L. Weston. 2 and 3, J. M. Bott. *Short-faced Mottles.*—1, J. M. Bott. *Short-faced any other variety.*—1, M. & A. L. Weston. 2 and 3, J. M. Bott. *Muffled Mottles.*—1 and 3, W. Gamon. 2, A. Mitchell. *Muffled Rosewings.*—1 and 2, W. Gamon. 3, E. R. Doughty. *Clear-legged Mottles.*—1, H. O. Crane. 2, J. M. Bott. *Clear-legged Rosewings.*—1, E. D. Careless. *Saddles.*—1, E. R. Doughty. *Badges.*—1, E. R. Doughty. 2, H. Hill. 3, A. Mitchell. *Any other variety Muffled.*—1 and 2, J. M. Bott. 3, W. Gamon. *Long-faced Bald or Beard.*—1, G. Webster. *Any other variety Clear-legged.*—1 and 2, J. M. Bott. 3, W. Gamon. JACOBINS.—*Red.*—1 and 2, S. Salter. 3, J. H. Smith. *Yellow.*—1 and 2, S. Salter. 3, W. E. Easten. *Black.*—1 and 2, S. Salter. *Any other variety.*—1 and 2, S. Salter. FANTAILS.—*White.*—1, Cup, and 3, P. R. Spencer. 2, J. E. Spence. *Any other colour.*—1 and 2, P. R. Spencer. TURBITS.—*Red or Yellow.*—1, G. Webster. 2, S. Salter. 3 and Cup, M. Green. *vhc*, W. R. Rootes, S. Salter. *Blue or Silver.*—1, R. Woods. 2 and 3, S. Salter. *Any other colour.*—1 and 2, S. Salter. 3, M. Green. BARBS.—*Black or Dun.*—1, J. H. Smith. 2 and 3, F. Smith. *Any other colour.*—1, W. Gamon. 2, F. Smith. 3, T. A. Bickley. ARCHANGELS.—1, S. Salter. 2, F. P. Bulley. 3, W. R. Rootes. NUNS.—1, R. Woods. OWLS.—*Foreign.*—1, S. Lingard. 2 and 3, R. Gough. *English Blue.*—1 and 3, S. Salter. 2, H. Parker. *vhc*, J. W. Ludlow. *English Silver.*—1 and 2, S. Salter. *English, any other colour.*—1 and 2, S. Salter. DRAGOONS.—*Blue.*—1 and 2, R. Woods. 3, W. Smith. *Silver, Black Bars.*—1 and 2, R. Woods. 3, W. Smith. *Silver, Brown Bars.*—1, 2, and 3, W. Bishop. *Red or Yellow.*—1 and 3, R. Woods. 2, J. W. Ludlow. *vhc*, J. W. Ludlow, R. Woods. *White.*—1 and 2, C. E. Chavasse. *Any other colour.*—1, Cup, and 2, W. Smith. 3, G. F. Whitehouse. ANTWERPS.—*Short-faced Dun.*—1, J. J. Bradley. 2 and Cup, R. Smith. 3, T. Clulee. *vhc*, C. Cartwright, J. J. Bradley. *Short-faced Blue.*—1, C. F. Herrieff. 2 and 3, T. Hubbard. *Short-faced Red Chequer.*—1 and Cup, W. Salter. 2, J. J. Bradley. 3, S. Foster. *vhc*, J. W. Ludlow, T. Clulee (2). *Short-faced Blue Chequer.*—1 and 2, J. W. Ludlow. 3, T. Ludlow. *Long-faced Dun or Blue.*—1 and C. F. Herrieff. *Long-faced any other colour.*—1, 2, and 3, C. F. Herrieff. SWALLOWS.—1, F. P. Bulley. MAGPIES.—*Black.*—1 and 2, F. P. Bulley. 3, W. R. Rootes. *Any other colour.*—1 and 2, F. P. Bulley. 3, R. Woods. SATINETTE OR BRUNETTE.—1, R. Gough. 2 and 3, J. M. Bott. BLONDINETTE.—1 and 2, J. W. Ludlow. ANY OTHER FRILLED VARIETY.—1 and 2, R. Gough. 3, J. M. Bott. ANY OTHER VARIETY.—1, G. Webster. 2, F. P. Bulley. 3, J. W. Ludlow.

BIRDS OF ANY AGE.—CARRIERS.—*Black.*—*Cocks.*—1, G. F. Whitehouse 2, T. Hallam. 3, J. H. Smith. *Hen.*—1, W. G. Hammock. 2, T. Hallam. 3, H. Allsop. *Dun.*—*Cocks.*—1, J. H. Smith. 2, G. F. Whitehouse. 3, R. Gough. *Hen.* 1, J. H. Smith. 2, W. G. Hammock. 3, H. Parker. *vhc*, W. H. Miller, P. R. Spencer. *Any other colour.*—*Cocks.*—1 and 2, W. G. Hammock. 3, J. W. Ludlow. *Hen.*—1 and 2, W. G. Hammock. 3, A. McKenzie. POUTERS.—*Black or Blue.*—*Cock.*—1, 2, and 3, H. Pratt. *Hen.*—1 and 2, H. Pratt. 3, J. H. Smith. *Red or Yellow.*—*Cock.*—1 and 2, H. Pratt. *Hen.*—1, J. H. Smith. 2, H. Pratt. *Any other colour.*—*Cock.*—1 and 2, H. Pratt. *Hen.*—1 and 3, H. Pratt. 2, J. H. Smith. TUMBLERS.—*Almond.*—*Cock.*—1 and 2, M. & A. L. Weston. *Hen.*—1 and 2, J. M. Bott. *Short-faced Bald or Beard.*—1 and 2, M. & A. L. Weston. 3, W. B. Mapplebeck. *Short-faced Mottled.*—1, M. & A. L. Weston. *Short-faced, any other variety.*—*Cock.*—1, 2, and 3, M. & A. L. Weston. *Hen.*—1 and 3, M. & A. L. Weston. 2, E. D. Careless. BARBS.—*Cocks.*—1 and 3, F. Smith. 2 and *vhc*, T. A. Bickley. *Hens.*—1, R. Woods. 2, T. A. Bickley. 3, F. Smith. OWLS.—*English Blue.*—*Cocks.*—1 and 2, S. Salter. 3, J. Brown. *English Silver.*—*Cocks.*—1 and 2, S. Salter. 3, H. Parker. *vhc*, R. Woods. *English any other colour.*—*Cock.*—1 and 2, S. Salter. 3, J. Brown. *English any colour.*—1 and 2, S. Salter. 3, H. Parker. *Foreign.*—1, S. Salter. 2 and 3, R. Woods. FANTAILS.—*White.*—1, H. Parker. 2 and 3, P. R. Spencer. *Any other colour.*—1 and 2, P. R. Spencer. JACOBINS.—*Red.*—*Cock.*—1 and 2, S. Salter. 3, T. A. Bickley. *Hen.*—1 and 2, S. Salter. 3, A. McKenzie. *Yellow.*—*Cock.*—1, S. Salter. *Hen.*—1, S. Salter. *Any other colour.*—*Cock.*—1 and 2, S. Salter. 3, T. A. Bickley. *Hen.*—1 and 2, S. Salter. TURBITS.—*Red or Yellow.*—1, S. Salter. 2, G. Webster. 3, R. Woods. *Blue or Silver.*—*Cock.*—1, G. Webster. 2, S. Salter. 3, R. Woods. *vhc*, W. R. Rootes, G. Webster. *Any other colour.*—*Cock.*—1, S. Salter. 2, R. Woods. *Any colour.*—*Hen.*—1, C. A. Crafer. 2, R. Woods. 3, G. Webster. *vhc*, S. Salter. NUNS.—1 and 3, R. Woods. 2, F. P. Bulley. MAGPIES.—*Black.*—1 and 2, F. P. Bulley. 3, W. R. Rootes. *Any other colour.*—1, A. McKenzie. 2 and 3, F. P. Bulley. ARCHANGELS.—1, S. Salter. 2, W. R. Rootes. 3, F. P. Bulley. TRUMPETERS.—1 and 2, P. R. Spencer. TUMBLERS.

–1 and 3, W. Gamon. 2, A. Mitchell. *Muffled Rosewings.*—1 2, W. Gamon. 3, E. R. Doughty. *Clear-legged Mottled.*—1, Brown. 3, J. Brown. *Clear-legged Rosewings.*—1, R. Woods. 2, n. *Saddles.*—1, E. Crudgington. 2 and 3, A. Mitchell. and 3, A. Mitchell. *Muffled any other variety.*—1, J. M. Bott. 2, Mapplebeck. 3, H. E. Yates. *Long-faced Bald or Beard.*—1, R. Woods. 2, 3, and *vhc*, J. Brown. *Any other variety Clear-legged.*—1 and 2, J. M. Bott. 3, W. Gamon. DRAGOONS.—*Blue.—Cock.*—1, Special, and 2, R. Woods. 3, W. Nichols. *Silver Black-barred.—Cock.*—1 and 3, R. Woods. 2, W. Smith. *Silver Brown-barred.—Cock.*—1, J. Fellows. 2 and 3, A. McKenzie. *Red or Yellow.—Cock.*—1 and 3, R. Woods. 2, A. McKenzie. *White.—Cock.*—1 and 2, C. E. Chavasse. *Any other colour.—Cock.*—1, A. McKenzie. 2 and 3, R. Woods. *Hen.*—1 and 3, R. Woods. 2, A. McKenzie. *Blue or Silver.—Hen.*—1 and 3, R. Woods. 2, A. McKenzie. ANTWERPS.—*Short-faced Dun.—Cock.*—1, T. Clulee. 2, W. Moseley. 3, J. Grice. *vhc*, W. B. Mapplebeck, J. J. Bradley. *Hen.*—1 and 3, W. Moseley. 2, R. Smith. *Blue Short-faced.—Cock.*—1 and 2, C. F. Herrieff. 3, T. C. Hubbard. *Hen.*—1 and 2, J. W. Ludlow. 3, T. C. Hubbard. *Red Chequer Short-faced.—Cock.*—1, J. J. Bradley. 2, T. Clulee. 3, J. W. Ludlow. *vhc*, W. Slater. *Hen.*—1, T. Clulee. 2, J. W. Ludlow. 3, W. Slater. *Blue-chequer Short-faced.—Cock.*—1, E. Thompson. 2, W. B. Mapplebeck. 3, J. W. Ludlow. *Hen.*—1, J. W. Ludlow. *Dun or Blue Long-faced.—Cock.*—1 and 2, C. F. Herrieff. 3, H. Parker. *Hen.*—1, C. F. Herrieff. 2, J. W. Ludlow. *Any other colour Long-faced.—Cock.*—1 and 2, C. F. Herrieff. *Hen.*—1, C. F. Herrieff. 2, H. Parker. SATINETTE OR BRUNETTE.—1, R. Gough. 2, J. W. Ludlow. 3, J. M. Bott. BLONDINETTES.—1 and 2, J. W. Ludlow. 3, R. Woods. ANY OTHER FRILLED VARIETY.—1 and 2, J. M. Bott. 3, W. B. Mapplebeck. ANY OTHER VARIETY.—1 and 2, J. Ludlow. 3, F. P. Bulley.

JUDGES.—Mr. J. Hawley, Girlington, Bradford; Mr. P. H. Jones, Fulham.

VARIETIES.

THE Council of the Royal Agricultural Society, in conjunction with the Lord Mayor's Committee, have arranged for the distribution of the following prizes at the Great Agricultural Exhibition to be held in London this year:—LIVE STOCK: British horses, £2600; foreign horses, £650; asses and mules, £140; British cattle, £3517; foreign cattle, £2220; British sheep, £1755 foreign sheep, £250; goats, £60; and pigs, £300. Produce: Hops, £265; seed corn, £70; wool, £135; butter, £86; cheese, £360; hams and bacon, £180; preserved and fresh meats, £145; and farms and market gardens £455, or in all £18,138. Additional prizes are in contemplation. It is also proposed to illustrate in the showyard the processes of butter and cheese making, and the action of the several descriptions of farm implements, as well as to exhibit side by side their most ancient and modern forms. The Mansion House fund now amounts to over £7000, a great part of which has already been voted for the prizes referred to, and the remainder will be absorbed in connection with the expenses of renting and draining the site of the Exhibition.

—— THE supply of Turkeys to the late Christmas markets was unusually large. Large numbers arrived from France, Ireland, and Canada. The Canadian Turkeys are packed in crates, most of the birds having their feathers on. The reason is that if they were plucked before leaving they would lose their colour. It is expected that no less than 50,000 Turkeys will be brought over next season from Canada.

—— AT the annual meeting of the National Agricultural Society, Southport, held on the 31st ult., Mr. Alderman Boothroyd, Mayor of Southport, was unanimously elected President for 1879. It was also decided to hold the annual Show in Southport in the last week in July.

ARTIFICIAL FOUNDATIONS.

SAMPLES of these made by Mr. Raitt of Beecroft, Blairgowrie, N.B., were sent to me lately for examination. These samples are of two colours, one considerably lighter than the other. A circular accompanied them, which says "that the light-coloured one is made from selected wax and is meant for supering." The prices range between 3*s.* and 3*s.* 9*d.* per lb.; and a pound weight of Mr. Raitt's foundations contain about twelve sheets 18 inches wide by 5 inches deep. The circular informs us that he makes up (by way of exchange) the wax of other bee-keepers. For wax sent to him he returns one-half its weight in foundations. This seems reasonable enough, and the samples sent are well made.

Though I do not know Mr. Raitt personally I have read some of his letters on bees, which indicate his great intelligence and activity, the firm grasp with which he holds the subject of bee management, and his powers of teaching. During the last few years he has evidently been the leading spirit in Scotland of the bar-frame school. As he has lately commenced bee-farming on a larger scale, and is now trusting chiefly to his bees for a living, I hope he will favour, and excuse me for asking him to favour, the readers of the *Journal of Horticulture* with an account of his system of managing bar-frame hives. If he will kindly do this I am sure his account will receive wide and appreciative consideration.—A. PETTIGREW.

EARLY SPRING FEEDING OF BEES.

I AM induced by a query from one of your correspondents ("CLIFTON"), to offer a few general remarks as to the early spring feeding of bees. "CLIFTON'S" intention is to feed at the end of February, his (or her) bees not having much honey. We prefer waiting till April, but necessity has no law; only let warm open weather be chosen, when the insects are stirring. It is better for several reasons to avoid feeding at top by bottle or otherwise in the early spring; first, because the bees will often starve rather than go far from the central mob, and the food at top is sometimes not accessible to them without risk of chill. Moreover, it is important to keep up the warmth within, which is often lowered unduly by removal of covers, not to speak of possible draughts upward. In the case of bar-framed hives I find it altogether better to take out a suitable comb, into the cells of which on one side the food is poured gently and gradually till every possible cell is filled. It is then slipped into the house as near as possible to the mob of bees. In this way they get at the food at once, and soon store it away into a convenient part of the hive. In the case of a skep, we turn the hive up gently and pour a little food at times into the empty combs right and left of the bees. If carefully done as much as a pound of honey or syrup can be given them in this way at a time. Care should be taken not to smear the bees with the food, except that a few drops may be allowed to trickle in among them for the purpose of stimulating their appetite and tempting them to store away the rest. As the population increases in number and the heat of the hive becomes greater, top feeding will be the better plan as in early autumn.

Now a few words as to the late frost and its effects upon our bees. Although the frost was of long continuance (nearly a month) there is no reason why the bees, if well supplied at the beginning, should not have come out of it lively and well. Here, near the sea, we registered 14° as the lowest (Fahrenheit), on three other occasions it came down to 15°, 17°, and 18°. On the day after Christmas day all my bees were out eagerly disporting themselves and making preparations, no doubt, for another frost-imprisonment if necessary. Had I doubts about the state of my hives I should not wait till February, but feed at once according to the method detailed above.—B. & W.

OUR LETTER BOX.

MANAGEMENT OF SWINE (*E. H.*).—We are aware it is a common practice to breed from a young sow the first time she comes in season, but we consider that sows should never be sent to the boar until they are eleven or twelve months old, in order that their size and constitution may enable them to furnish a good supply of milk for their young. It is often the case when sows breed too early that they bring but few young at the first farrow; and as the result of a long experience we have found that when a sow has only a few pigs at the first birth, they, as a rule, come irregular in size and growth ever afterwards, and although there are exceptions to this rule, still it is bad policy to risk the result, and we invariably fatten-off any sow which does not bring a full number of pigs and bring them up well as a first farrow.

DEAD QUEEN (*Clifford*).—We fear there is nothing to be done but to bury your dead queen with all decent pomp; and as for the bees which seem to have lost her, we fear they will be too far reduced in numbers for recovery by the time brood can be given them, as you suggest, for the purpose of raising a queen. The very earliest time that they could raise a fertile queen would be the end of March or beginning of April, and then only in an early spring. We should drive the bees out in February or March, and join them to another stock.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. Jan.	Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 1	29.819	47.0	45.5	S.	41.1	51.0	46.2	54.0	42.1	1.115
Th. 2	29.997	28.6	28.3	N.W.	39.8	34.2	28.2	63.5	32.1	0.610
Fri. 3	29.286	36.7	36.7	N.	36.8	41.2	28.2	50.0	23.3	0.049
Sat. 4	29.711	30.0	29.8	—	36.8	37.8	28.6	57.4	26.0	—
Sun. 5	30.135	29.4	29.0	N.W.	35.8	36.3	26.4	54.2	24.2	—
Mo. 6	30.247	25.8	25.7	W.N.W	35.0	32.4	22.4	34.9	21.2	—
Tu. 7	30.100	32.7	32.3	S.	34.8	34.2	25.7	35.0	25.3	—
Means	29.899	32.9	32.5		37.2	38.2	29.4	49.9	27.7	1.768

REMARKS.

1st.—Very fine warm morning, overcast between noon and 1 P.M.; rain commenced 1 30 P.M., continued steadily heavy, in evening followed by snow.

2nd.—Windy in night, with much snow; clear bright day, and moonlight evening, with lunar halo.

3rd.—Very thick and rainy morning, rapid thaw, fine in afternoon; rain in evening.

4th.—Fine, bright, cold day; clear moonlight evening.

5th.—Bright sunny morning; rather thick in afternoon; bright moonlight night.

6th.—Cold chilly morning; very foggy in afternoon and evening; clear at 10 P.M.

7th.—Dull cold day, little sleet at times; high wind; bright evening.

The sudden warmth of the 1st was displaced towards evening by cold with heavy snow, and more or less frost prevailed during the rest of the week.—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 8.

We have no alteration to quote, business is at a complete standstill, and though the supply is small it is more than equal to the demand. Prices also remain as before.

WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 16—22, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
16	TH	Royal Society at 8.30 P.M.	42.0	31.0	36.5	8 1	4 19	1 56	10 49	24	9 58	16
17	F	Royal Institution at 8 P.M.	42.6	28.7	35.6	8 0	4 21	3 22	11 17	25	10 18	17
18	S		42.6	31.3	36.9	7 59	4 22	4 44	11 56	26	10 38	18
19	SUN	2 SUNDAY AFTER EPIPHANY.	43.1	30.6	36.9	7 58	4 24	5 55	0 a 50	27	10 57	19
20	M	London Institution at 5 P.M.	42.4	30.6	36.5	7 57	4 25	6 51	1 59	28	11 15	20
21	TU		42.9	32.0	37.5	7 56	4 27	7 31	3 16	29	11 32	21
22	W	Society of Arts at 8 P.M.	43.1	32.8	37.7	7 55	4 29	7 59	4 36	●	11 48	22

From observations taken near London during forty-three years, the average day temperature of the week is 42.6°; and its night temperature 32.5°.

RESTING PERIOD OF PLANTS.

IN considering the resting period of plants, deciduous as well as evergreen, we approach a subject of considerable importance, and one which should command the attention of everyone connected with either plant or fruit culture. In some cases of cultural practice we see the laws of Nature, which to a large extent should guide us, set at defiance, and follow hobbies of our own. This is often the result of a want of knowledge of the habits of the plants and the varied conditions under which they exist in their natural state. We turn as it were the season round with many plants and crops required to be forced early; but if such plants, &c., are properly prepared by being assisted to make an early growth and receive what Nature demands—a season of repose, they are ready when the time comes to be forced. We have seen cases where early preparation has not been made and the laws of Nature violated by trying to force plants unnaturally, the result being a failure. Plants rest, from the tallest of our forest trees and shrubs down to the grass of the field, and, lower still, to the smallest of Nature's productions. We do not say they all rest at the same time, but with the majority of plants the resting season comes on towards the autumn. The time of starting into growth varies, so also does the resting period.

There are cultivators who entertain the opinion that a season of repose is not absolutely necessary for many plants, but how long will the plants continue in good health without it? By way of illustration, Tea Roses and Eucharis amazonica have been adduced as instances of plants that require no rest. We are aware the former treated artificially under glass have rest forced upon them to a large extent; if they are not systematically rested the wood becomes weaker and weaker until the vital energy of the plant is depressed, it then shows signs of exhaustion, and the wood begins to die-back, and finally a long rest is produced—the rest of death. The leaves of the Eucharis also, if the plants are continually excited, soon present a yellow appearance, and the flowers are very small as compared with those of plants enjoying that period of repose which Nature demands.

It would be difficult to determine to what degree the resting period of different plants should be carried out. This is a question that is best decided by each cultivator according to the time various plants and crops are required; but to enable him to decide correctly he must act intelligently. Rest by some cultivators is carried to the extreme, and consequently, instead of renewed vigour following, the result is debility. We believe the partial failure of Peach crops in houses is often due to the roots of the trees being kept too dry; this is what may be termed violent rest, not intelligent repose. The Vine, too, is sometimes allowed to go dust dry at the roots while ripening its wood. This is not natural health-producing rest, but an unreasonable arresting of growth, drying the life's blood out of the Vines. What can be expected but failure when Nature's laws are so outrageously violated? It would be difficult to imitate Nature in the case of each individual plant as we have them grouped together in our houses; yet by a sound well-considered system of cultivation we can assist Nature as far as the means at our command allow.

In recommending that Nature be followed as the basis of resting plants we may be pointed to the struggle for life which is sometimes going on in the case of our British Ferns, Mosses, &c., on dry stony banks and in the crevices of rocks, where they are burnt up by the sun, and can only with difficulty exist. True, they are in a state of nature, but it is an accidental state, and the plants do the best they can under the circumstances. But go with us to the shady dell, and we see plants of the same kind by the side of the rippling stream fresh and green, and growing luxuriantly. This is the state of Nature we would recommend—Nature not impeded by obstacles; yet in such a position the plants have rest—rest produced by a subsidence of temperature, and not by extreme and enfeebling drought.

Notwithstanding the diversity of opinion existing respecting a season of rest for plants, we have practical evidence that plants after a proper season of repose are imbued with fresh vigour—new life, whether this dawns in the autumn or spring. It is important to remember that plants rest under various conditions, some by having water withheld for a time and the temperature considerably lowered from November until February, while others are impatient of drought, and to keep them dry would be to injure them. Allamandas, Bougainvilleas, Clerodendrons, and plants of that nature are benefited by a good season of rest, yet they do not need such complete and long repose as some growers give them. A period of seven or eight weeks is sufficient, provided—and this is important—that the wood is ripe before water is withheld. We would urge upon all in charge of a plant stove to use the waterpot judiciously throughout the winter amongst Crotons, Dracænas, Dieffenbachias, Sphærogyne latifolia, Stephanotis, and plants of a kindred nature. Those plants need water during the resting period, but only sufficient to maintain their foliage and roots in a healthy condition; the temperature should also be sufficiently low so as not to incite them into growth until increased light, warmth, and moisture are at command to render that growth vigorous. If such plants are excited during the winter their growth is weak and puny; and, further, if they are not rested, when they are wanted to grow in the spring they often refuse to answer to the call.

Orchids need repose, but care and time are necessary for finding out the requirements of each individual species—the amount of rest they need, and when and how they enjoy it. Aërides, Vandas, Saccolabiums, Phalænopses, Zygopetalums, Phajus, and some others are growing more or less through the winter; the first four only require a short season of rest, and should have the moss kept moderately moist. On the other hand, there are varieties that are deciduous while at rest, and these will endure water being withheld for a time with impunity. Those with pseudobulbs may be kept much drier than those without, and in each case the temperature should be sufficiently low without injuring the plants.

If we look into the greenhouse we frequently find a varied collection of plants, including some from the Cape, others from New Holland, and others again from the swampy parts of the West Indies, all of which are benefited by receiving a season of repose according to their different requirements. For instance, Azalea indica and its now numerous varieties remain comparatively inactive for a long time during the winter, yet they should not be kept so dry as we have often seen them, for their fine roots are soon killed if once allowed to become dry. Many stove bulbs are worthy of more consideration than is occasionally bestowed on them. Plants of this nature are often put to rest with a vengeance, for after they have done good service in the stove we have seen them placed in cold potting sheds, left to take care of themselves, instead of being encouraged to mature their growth and thoroughly develope their bulbs. With such treatment what can be expected but dry rot in Caladiums, soft and flabby corms from Gloxinias, and small tubers from Gesneras, and so on?

We shall not enumerate any other class of plants, but we wish it to be understood that rest more or less is enjoyed by all plants at different seasons and under various conditions. When we consider we have some plants from very high elevations, others from swampy places, some found attached to trees and rocks, others from the upper plains of Mexico, &c., we need not wonder that they vary in their mode and times of resting according to their different habits and the conditions under which they exist in their native homes. He who considers well those circumstances and acts accordingly will succeed the best. It is only by reading carefully and thinking intelligently that gardeners and cultivators can work economically and effectually.—W. BARDNEY, *Norris Green.*

GARDENERS' GREED.

PROBABLY many of your gardener readers when they see this heading will judge from it that I am going to say something against them or their practice, and so I am, but not unjustly. I do not know of any class of men more greedy than gardeners. This failing is often carried to the extent of some men losing their places through it, and others their peace of mind for a whole season, indeed for much longer than that. The greed I have to lay to the gardener's charge differs much from that kind of covetousness to which the word is usually applied, as they neither crave after their employer's goods nor other people's for their own benefit, but their greatest greed is all for the advantage of their employers; nevertheless, it is often very injurious in its effects. As the season will soon be at hand again when the temptation to be greedy will be strong, I will now denounce it, and try to avoid the temptation when it comes—if I can.

Probably the first indication of it will be apparent in the earliest vinery. Who has not heard of the Vines in this house being worn out prematurely through overcropping? and pray what killed them but greed? Greed in overcropping is one of the greatest and most common errors in gardening practice; and though in many cases absolution may be freely granted, it is the ruination of half the fruit crops and ultimately half the fruit trees in the country. How often do we hear it said that certain young Vines, Peach, Apple, or other fruit trees did splendidly until they produced their first, second, or third crops, when failure ensued—failure which in nine cases out of every ten was caused solely through greed in overcropping. Overcropped Vines may grow apparently well for a time, and may go on for a year or two without showing any injury, but show it they will, and too soon, by badly coloured fruit, shanking in the berries, and deficiency in flavour. The Vines will also show the injury they have received by shyness in starting, weak growth, bunches becoming yearly smaller, and a state of general and premature debility.

As a cure for overcropping, rest or light crops for a few years are generally recommended; but would it not be better to be less greedy, and crop in moderation, than to have a large quantity of badly finished Grapes? But apart from the gardeners' greed I know that many employers have a great aversion to having superfluous bunches cut from the Vines, and in that case let the responsible party take the blame. Moderate cropping is a term difficult to define, so much depends on the strength of the rods, their feeding supplies, and the size of the bunches. In one thing there can be no mistake—always crop young Vines lightly; 1½ lb. of fruit to every foot run of the rod I have always found a safe crop. Thus a 12-foot rod should bear 18 lbs. of Grapes; and it is decidedly better to have 18 lbs. of finely finished Grapes on a vigorous Vine than 36 lbs. of bad fruit on a half-killed plant.

Peaches are also too often subjected to greedy cropping. In this case many fruits drop before they are ripe, and what remains does not swell freely, and the following year the blossom is thin and sets badly, and much of the fruit that does form drops during the stoning period. Thinning should commence early, and eventually the fruit should not be left closer than from 6 to 12 inches according to the strength of the tree. Closer cropping than that displays greed.

Vines and Peach trees suffer most from overcropping under glass, but all kinds of open air fruits are often injured by the same cause. Let an Apple, Pear, or Plum tree be loaded with fruit, it is rarely that they are thinned, and the consequence is that such trees only bear a crop every other year, and often more seldom than that. From experience I must assert that if less greed were shown in cropping all kinds of fruit trees by thinning the fruit to a moderate crop annually, superior fruit, annual crops, and healthy long-lived fertile trees would be the result. Overcropping has killed more fruit trees and produced more inferior fruit than all other fruit tree enemies put together. The injury caused by the gardener's foot is slight compared with that caused by gardeners' greed. —A KITCHEN GARDENER.

SUNNY MEMORIES.

AMID the gloom of winter, during the foggy days and the long evenings, how the mind reverts to scenes that passed before it in the golden summer! How the vista opens out and gives us once more a glimpse—nay, even a vivid picture full in every detail—of landscape, hill, or flood that impressed itself there during sunny rambles. One or two such pictures now start up, photographed more distinctly than the rest. In the first a pleasant drive of three days has brought me to the sweet southern shore, and I am established in a village near Lyme. It is early summer. Good bathing, good boating, and fishing are its recommendation. Remains of mighty marine monsters abound in the cliffs, for there the lias which has stretched across the country from Whitby terminates in grand sections. Among the débris of a landslip I come upon a native, who explains to me that he is searching for the "flipper," as he terms it, of a saurian. Yes, I can see the rest of the critter if I can get up over the cliff. We wind along up the face of the escarpment, holding on by projections, till we reach the fringe of purple Heather and wild Thyme at the top, and soon approach a cottage, decorated as I imagine no other cottage ever was. I had once seen in Portland Isle two stone trees (Stigmaria) that formed a grim doorway to a miner's hut; but here, ranged round three sides of the little garden, were the mighty joints of a plesiosaurus, complete but for that "flipper" and a few vertebræ of the tail. These missing links he really expects to find, perhaps after next winter's landslips or at some very low tide. Would he part with such a "pocket specimen?" Twenty pounds might perhaps buy it now, but not twice twenty if he can come across that "starboard paddle." I wished some museum would put up such a noble frieze in its geological room. As it is, it is suffering from exposure to all weathers, decked out with a strange mixture of ammonites and Gillyflowers,

"Silver bells and cockle shells, with dewdrops all of a row."

Nature has not mummified it well enough for its blocks to support washing tubs and other domestic utensils.

Next day I visit a garden equally strange to me. Passing the cottage I take once more a private view of that old serpent; then three miles of dusty road and tropical heat bring me to a steep descent, a lane overshadowed by trees with a bubbling brook at the bottom. Just before reaching the bridge I am startled by the apparition on the opposite slope of a steeple, looking at first view well nigh as tall as Salisbury spire. The place seems lonely. I ascend the bank, enter the wicket gate, and am at once in paradise. The churchyard, by no means a small one, has been turned into a rosery. The graves, with small iron memorial crosses instead of headstones, are planted with dwarf Rose trees of every known sort, either past their best or not doing well. The porch and south side of the church are hidden by a forest of climbing Roses—Solfaterre, Devoniensis, and Maréchal Niel. A brisk old man is busily sweeping and clearing up, since to-morrow is Sunday. Would I like to see master? Yes; for therefore am I come. I am

speedily conducted along the alleys of velvety turf, and see one in shirt sleeves resting from work, reclining on the grass and sipping coffee. Not a "wild man among the tombs" either, but the master hand that has created all this beauty in the Wyld, for this is no other than "WYLD SAVAGE," and that is his man Job, both so well known at our Rose shows. "Ah! Mr. Camm," I said as he was leading me round, "I see well enough your soil is bad, while your air and aspect are splendid. Mine is a worse case. With an excellent soil and the best aspect my Bristol garden has a gasworks immediately beneath it, and soil can be improved more easily than atmosphere." "Not much more easily when every load of manure up here costs me a guinea, and all the natural soil hereabout is so light that you must have a very sharp knife to cut your Roses with, else you would pull them up." Further on I expressed a wish that someone would present him with a living in the rich valley of the Exe; but when he showed me the beautiful interior of his church—stained glass, organ, decorated choir, pulpit, inlaid floor, nearly all done at his sole expense, and I fear to his impoverishment—I felt I had made a mistake, and that he has done too much for that solitary church ever to leave it. At parting I told him that I had given up Roses, and that he had better do the same. "And take to what?" said he eagerly. "Why! to Dahlias, Irids, Liliums, and Chrysanthemums." If he would we should soon find him rivalling Kelway, Turner, Cannell, and the rest of them; while he could still write about Roses as well as ever for us without feeling the thorns. Now let all of us, amateurs and nurserymen alike, who have spare bulbs and roots put them up in hamper or bag, and direct them, carriage paid, to be left at Axminster railway station, sure of being well repaid by pleasant notes and useful articles in "our Journals" to come.—PENUMBRA.

HARDY FRUIT VERSUS BIRDS.

WITH all due respect to Mr. Taylor, whose writings I have read now for a long time both with pleasure and instruction, I cannot agree with many of his remarks on page 6. In the first place he says, the "greatest difficulty" (speaking of hardy fruit culture), "is caused by the insane preservation of mischievous birds, while some of the most useful are destroyed wholesale." I have laboured under the impression that sufficient had been both seen and said of the injurious results of bird-destruction in this country alone, independent of the ravages committed and losses suffered on the Continent, where the birds had been carefully exterminated, to have convinced every sane person of the errors thus committed, and I did not expect to find anyone courageous enough to recommend the insane practice of extermination again.

Being a great lover of all kinds of birds I may be considered rather a partial judge. I enjoy the hoo, hoo, of the owl in the dark woods, and like to see its noiseless ghost-like movements on a moonlight night. I also like to hear the merry notes of the cuckoo on a bright spring morning, to me the harbinger of the bright sunny days to come; but I certainly should not pick out these two birds as the gardener's assistants in the production of a good crop of hardy fruit. That the owl is a great friend to the farmer cannot be denied, but he will not stoop to the striped caterpillars on the Gooseberry trees; and if the cuckoo will not eat anything but these striped caterpillars which feed upon the leaves of the Gooseberry in August, he must have a rather hard time of it waiting until they are ready for his maw.

Finding a cuckoo seems to be quite a novelty to Mr. Taylor. I have frequently caught them in the position named, but it is only the young ones bred in this country, and these the late-hatched birds. These young birds, having left the nest of their foster-parents, have not sufficient strength to take their food upon the wing, consequently they are compelled to hop about upon the ground to obtain it. Whilst not denying their insect-destroying qualities, allow me to observe they have a "strong weakness" for Currants. Having watched them feeding from the trees, and taken the fruit out of their crops afterwards, I can speak positively on that point; but that is no sufficient reason why the cuckoo or any other bird should be exterminated.

What can be said to Mr. Taylor's advice in respect to that beautiful bird the bullfinch? He says, "Shoot, trap, birdlime, or kill anyhow;" but if the buds are destroyed by these birds at this season, a little vigilance will tide over this difficulty. And what about the good deeds done by the birds during the twelve months? Their enemy is silent in this respect. Are not our leafless trees scoured and cleaned from insects by thousands of birds during the winter months and then when summer comes and the land begins to teem with insect life, what would become of our fruit if we did not receive such an accession of birds as those hordes that come to us from other countries? If birds have a taste for fruit as well as for insects they must be restrained from indulging their fancies to the detriment of the common weal. But we are told "he shall not muzzle the ox that treadeth out the corn;" why, then, refuse a taste of fruit to those birds that have been to a great extent the cause of your possessing any?

I hardly think Mr. Taylor's remarks upon gamekeepers just. We know they do kill any and everything that would appear to be likely to injure the fruit; but I do not think any member of the fraternity would thank Mr. Taylor for supposing him such an ignoramus as not to know the flight of a cuckoo from a hawk, although the latter is marked on the under side somewhat like a sparrow-hawk, that is the only resemblance which it bears to any member of the genus Falco. The assertion that "many quadrupeds are killed indiscriminately which would be better left alive," I cannot help saying comes with bad grace from one who acknowledges he neither can name them nor state what good these hapless quadrupeds have wrought him.—W. H. G.

THE WEATHER, VEGETABLES, AND THERMOMETERS.

THE ingenuity of gardeners has been taxed to the utmost during the present and late inclement weather. It is many years since we had anything of the sort before, and we shall doubtless have to unlearn with some reluctance some of the things we have learned during the series of mild winters. Some of our choice vegetables which have rapidly become popular will now have the chance of proving their hardihood, and some old friends which we were beginning to think we could do without will again come into favour. Snow's Broccoli is one of the latter. I have it and Veitch's Self-protecting planted side by side and treated exactly alike. They were not covered in any way during the first week's frost in the old year, but after that time, one morning when there were signs of the sun shining, a little litter was scattered over the tops of all, and it remained there till the frost was gone. When the mild weather returned after three weeks of hard frost, Snow's Winter White was found to be perfectly unharmed, but the full-grown leaves of Veitch's Self-protecting looked as if hot water had been thrown over them, though the heads just forming in each of the sorts were uninjured. Even Veitch's Autumn Giant Cauliflower withstood the weather better than the new Broccoli, for I cut a dozen good little heads of it on New Year's day averaging 2 inches in diameter.

It is very remarkable that such severe frost as we had at the close of the old year should have done so little harm to vegetables; but we can partly account for it by the weather being cold throughout November and checking luxuriant growth, and then when the frost came it was nearly continuous, very little thawing between; and finally when it left us, although the thaw was very quick there was no sunshine with it.

I believe every seedsman who professes to supply Snow's Broccoli sends out a different variety, and it is no easy matter to save seed of the true stock. I have seen a great many varieties under the name, most of them good, but the genuine Snow's Winter White sown about the end of April in the southern and western counties, begins turning-in before Christmas in an average season, and is only a week or ten days behind Veitch's Self-protecting. The latter forms the larger head of the two, and would supersede Snow's if it were as hardy, but from the experience of the last month I must beg the Messrs. Veitch to continue keeping their excellent stock of our old friend as they have now done for so many years; and as I know their aim is to promote horticulture and help horticulturists quite as much as it is to fill their exchequer, they will forgive me stating my experience even though it be seed-order time. I shall still grow their new Broccoli, as it has been so good during the past few mild seasons, but I shall take care to have a good breadth of Snow's as well, and as they will both follow early crops of Potatoes or Peas the cost will be nothing beyond the price of the seed and the planting.

The spell of frost we are now having, although at present not more severe than we had before, will, I am afraid, leave its mark behind, as there is more wind with it, and that mostly from an easterly direction. Leaves of evergreens look very uncomfortable, and it is with difficulty that we can keep our

forcing houses at the proper temperature and humidity. We cover up as much as possible to lessen the firing, not only because hard firing is expensive, but it is injurious and misleading. A thermometer in the middle of a house may indicate 55°, or any other desirable temperature, but we must not conclude that all the air in the house is of that temperature. Plants trained near the roof or standing by an outer door may at the same time die of cold, so rapid is the change of air. Where the ends of houses open into another building and the roof is covered during the night it is very different. Covering may sometimes be advantageously left on all day, especially on a north or east side of a forcing house. Some canvas covering little more than a yard of a hip-roofed pit makes a difference of 3° to 4° in the temperature of the body of the pit. This is proved by the next compartment being that much lower than the partly covered one, while they both worked alike before the covering was placed on. Of course, if thermometers were placed near the glass, the covered portion would show a still greater advantage; but the principal benefit is not in the increased temperature, the covering checks radiation and evaporation. I am afraid we gardeners still think a great deal too much of temperature, not that it is unimportant, but there are other points requiring equal attention and which do not receive it.

I see in this and other journals a great many reports of low outdoor temperatures, and I should like to give you my report, but strange to say it would be totally untrustworthy. I have bought some scores of thermometers within the last ten years at all prices from 1*s.* 6*d.* to a guinea, and I have never yet found two which would continue to work together or even within two or three degrees for a week when the weather became severe. They will stand ordinary weather very fairly, but when it comes to a hard frost I cannot depend on one of them; and I must tell you this experience makes me rather sceptical about other people's reports, all of them, doubtless, given in good faith, but many of them without any test of the accuracy of the instrument. Is there anything particular in the air here which is injurious to thermometers? or am I always unfortunate in my purchases? Supposing an instrument is tested at Kew or any other scientific establishment and delivered correct, is there any guarantee that it will continue to work correctly for six months?—WILLIAM TAYLOR.

THE NATIONAL ROSE SCHEDULE.

I ENTIRELY agree with Mr. Mitchell as to the improvement proposed to be made in the National Rose Society's schedule at the Crystal Palace. I allude, of course, to the alteration of the number of Roses required to be shown by amateurs for the premier prize from forty-eight to thirty-six. I join issue with "MID-SURREY" on this point, and can tell him that the original intention of the Society and the wish expressed by Mr. John Cranston, the donor of the prize, was that the cup should be given to the best thirty-six, not forty-eight Roses. But at the meeting when the schedule was decided on, two or three of the larger growers just managed to secure the larger number by, I believe, a majority of one.

"MID-SURREY" is in error in supposing that Mr. Baker and Mr. Jowitt will not compete in the thirty-six class this year; they are quite eligible to do so. The final fight for Mr. Cranston's cup in no way disqualifies them from competing for all the other prizes, nor would it be fair that it should do so.

At Hereford, in my opinion the pleasantest and most regular of all shows, the head class for amateurs is thirty-six, and that is generally quite enough for even the giants. My own opinion is that seventy-two is too large a class for nurserymen, and for this reason: I have never yet seen a seventy-two without a decided tail to it—I mean there are always some blooms, not perhaps bad examples of the flowers they represent, but bad blooms as compared with the others. I have in my mind's eye at the present blooms of Paul Neyron, Madame Charles Wood, Abbé Bramerel, and other coarse flowers which nearly always appear in a seventy-two.

As to winning a fifth or sixth prize, I can only say that I should be very glad to do so in such company as that assembled at the Crystal Palace. "MID-SURREY" is also in error when he supposes that the forty-eight being done away with the smaller men will have a harder fight. The same restrictions as to showing in the smaller classes will still be in force, and "MID-SURREY" need not fear that the Heavitree Roses will dim with their glorious lustre the glories of his own, or that the Hereford Teas will put his own to shame. I am only too thankful that the change "MID-SURREY" deplores is going to take place, and I say this not from any personal motives, for I shall not show in any classes but Teas, and, if this hard weather continues, not in them, so that my object is simply the good of Rose-showing in general and the success of the National Rose Society in particular.

With regard to "THE HEREFORDSHIRE INCUMBENT'S" inquiry as to the Tea Rose Jean Pernet, I fully intended to include it in my list; and with regard to Elise Sauvage, although a poor grower, I have no reason to believe that it is worse than many others, such as Comtesse de Nadaillac and Madame Jules Margottin.—WYLD SAVAGE.

AN EXHIBITION GUIDE.

NEXT in importance to the knowledge of what to grow and how to grow it is the standard of perfection to be aimed at. In running a race he that comes in first wins, while the decision between competitors at many horticultural shows may be either the result of judgment, fancy, or some private whim. The discussion we had as to the judging of Roses, the standard we had given us recently as to what are the properties of a good Chrysanthemum, are I consider steps in the right way; and I am now going to seek advice in a direction in which many beside myself are deeply interested.

As a rule at great shows the judges' decisions are well received; and were all prizes so awarded we should be saved the trouble of seeking further guidance. The difficulty that most disheartens is the uncertainty that the prizes will be awarded according to any sound principle of judging. Amongst gardeners the difference of opinion is remarkable. As evidence of this I will allude to the competition for the collections of fruit at the last Newcastle Autumn Show. So far as I could discern I concluded that the exhibits were pretty equal; but I found that this was far from being the general opinion. The exclamation was common, the judgment of the collections of fruit "was all wrong;" and being especially desirous to gather information as to the separate qualities of the separate dishes, I induced several gardeners to explain to me their view of the "mistake." The information I gathered was this: Over and above those who would have placed the three first collections equal there were gardeners professing to be judges who would have placed the three stands in every possible different position. At the Durham Show, again, in the collections I heard the exclamation, "You are beaten with higher-class fruit." What I would plead for is some standard for guidance of judging fruit be determined, and to submit that committees of horticultural shows state in their schedules the exhibits will be judged by such standard. Further, on the separate merits of fruit, for the best bunches of Grapes also equally well grown, ought any particular variety to take precedence? Ought size or colour of Peaches and Nectarines count for the most points? Especially I would like to know, in a collection where all the dishes are equally well grown, what position ought an uncut Melon to occupy? Figs, Apricots, Apples, Pears, Plums, Cherries, &c.—I would also like to succeed in having such fruits placed in their position on authority. The success of my scheme I think would supply a kindlier feeling among exhibitors, as they would then more readily see the strong or weak points of their separate stands and be satisfied. This is a subject that I think well worthy of being discussed by fruit-growers and judges.—J. WITHERSPOON.

ADIANTUM FARLEYENSE.

I HAVE grown this lovely Fern from the first, and I have had plants 6 inches, as well as 6 feet in diameter, of it. For years I have looked for a fertile frond, but in vain. It is a barren Fern I am pretty certain. I remember being told when it first came out that it was a seedling from scutum, but I never believed it.

I may tell Mr. Peach that this beautiful exotic varies greatly in character, some forms possessing magnificent pinnæ, very large and splendidly toothed or fimbriated, whilst others are very poor, and to an ordinary observer would hardly appear to be farleyense at all.

I have cultivated it in many ways, but it succeeds the best in strong heat, with shade and ample atmospheric moisture; a Cucumber house, for example, answering admirably. Liquid manure, too, I have given it, and the compost I have used has been strong loam.

I have a large specimen just now growing in my cool stove

fernery or Adiantum house, and it flourishes in this comparatively cool temperature. I find that to keep cut fronds they stand the best when taken from plants grown in cool houses. I have many plants dotted up and down my houses, but no trace of a spore upon one of them. I enclose a dried frond from a small plant of a capital variety or form.—T. M. SHUTTLEWORTH, F.L.S., F.R.H.S., *Howick House, Preston.*

[From the specimen enclosed the variety must be a very fine one. The pinnæ are deeply cut and finely fringed, and they vary from 1½ to 1¾ inch in width.—EDS.]

THE PROPOSED CHRYSANTHEMUM TOURNAMENT.

THE discussion which has been going on lately in the Journal is now assuming a character calculated to produce good results. If the proposed tournament is carried into effect alike fairly and satisfactorily to all interested in it, I am under the impression that it will cause quite a revival of the Chrysanthemum fever both north and south. Rivalry in cultivation pervading the whole of Chrysanthemum growers is certain to quicken the pulse of their genius, and is likely to prove the foundation of an eminent addition to the present lovers and growers of this beautiful autumn and winter flower.

As to where the proposed tournament should be held, I think with Mr. Hinds and several others that Birmingham is the most suitable place, as it is situated about half way between Liverpool and London, which would be equally fair to both northern and southern growers as far as time, expense, and distance in carriage are concerned. Moreover, one party could not then say to another, "My blooms would have beaten yours had I not to carry them so far by rail and by 'bus; if I resided so near the place of exhibition as you, mine would have received a very different award."

I am also of opinion that money prizes are much preferred by the majority of gardeners to cups and medals; such trophies harmonise better with field sports than floral contests. If the sum of, say, £30 was collected, and the same offered in six prizes of first, second, and third for twenty-four cut blooms incurved; first, second, and third, twelve cut blooms incurved, and the same for Japanese, twenty-four and twelve, this would allow a chance for minor as well as extensive cultivators. By permission of the Committee and Secretary of the Birmingham Horticultural Society, the classes could be entered in the schedule of their Chrysanthemum exhibition under the heading "Liverpool and London Chrysanthemum tournament prizes."

Another very essential point, as well as equally fair to all, is that five judges should be appointed, two from the north and two from the south, and the fifth could be easily secured at Birmingham if in case a casting vote should be required. The judges should be experienced growers of exhibition blooms; and both for their guidance as well as for exhibitors there should be a well-understood and recognised system of judgment, accompanied by a tabulated list of varieties from which the combatants could make a selection for competition. That list, however, I think we may regard as being settled.

Again, I would suggest that all blooms be shown with 3 or 4 inches of stem and foliage as cut from the plant. I lay stress on this particular point, as I know it would meet the approval of many exhibitors and the public generally.

If the south-country growers collect the tournament prizes this year among themselves as the Liverpool growers did last year, it is quite probable that the tournament prizes would be furnished by the north-country growers next year.

I have now given my opinion and suggestions, and which are in accordance with the opinions of a few more exhibitors in this quarter.—HUGH ELLIOTT, *The Gardens, New Heys, Allerton, Liverpool.*

SUTTONS' MAGNUM BONUM POTATO.

I SHOULD be very glad to know the opinion of some of your readers as to the qualities of Suttons' Magnum Bonum Potato when cooked. My employer seeing the advertisement in your Journal last spring, and especially Mr. Penny's letter stating that the Magnum Bonum was the best-flavoured Potato he had ever eaten, decided on giving it a trial. He wrote for one bushel, which arrived from Messrs. Suttons the last day of March. They were planted the 2nd of April in three different positions and grew splendidly. Some were planted 5 feet apart drill from drill, with the intention of planting Borecole between as recommended by Messrs. Sutton in their "Amateurs' Guide," which was kindly sent; but to our great surprise the growth of the Potatoes filled up the whole space. The growth in one particular drill when measured was 8 feet 6 inches high by 5 feet wide. They were not highly manured, but there had not been any Potatoes planted in the same ground for twenty years. Of course there was great expectation from such wonderful Potatoes, but I regret to say that they failed in cooking. They were a splendid crop and quite free from disease, which is the more remarkable, as it has never been so bad in this neighbourhood and in this particular place. What was the cause of their being so very soft and wet when cooked? Was it the late planting or the want of sufficient sunshine, or are they generally bad for cooking? If so it is a great pity. I am very anxious to know more about them, as the time is coming for planting, and we have all we grew, as they could not be eaten.—J. K., *Co. Dublin.*

SEEDS FOR SOWING.

"G. O. S.," on page 9, has directed attention to a subject that is no doubt of considerable importance to many readers. The relative duration of the vitality of various seeds is referred to in Johnson's "Principles of Gardening," from which an extract may be seasonable at this time.

"As a rule the more starchy and other matters into which nitrogen does not enter as a constituent, which a seed contains, the longer will it retain vitality, and two familiar instances are common Rice and the Kidney Bean. Rice contains 85 per cent. of starch, and will retain its vegetative powers for many years, whilst Kidney Beans—which contain one-third their weight of animo-vegetable matter and other constituents, of which nitrogen is a component—will not vegetate healthily a second season.

"The following list, furnished by the late Mr. Loudon, shows the greatest age at which some of our common garden seeds germinate freely; and this result of experience is quite concurrent with our knowledge of their chemical constitution:—*One year:* Peas, Beans, Kidney Beans, Carrot, Parsnip, Oraches, Herb Patience, Rhubarb, Elm, Poplar, and Willow. *Two years:* Radish, Salsafy, Scorzonera, Purslane, the Alliums, Cardoon, Rampion, Alisander, Love Apple, Capsicum, and Egg Plant. *Three years:* Seakale, Artichoke, Lettuce, Marigold, Rue, and Rosemary. *Four years:* Brassicas, Skirret, Spinach, Asparagus, Endive, Mustard, Tarragon, and Borage. *Five and Six years:* Burnet, Sorrel, Parsley, Dill, Fennel, Chervil, and Hyssop. *Ten years:* Beet, Celery, Cucumber, and Melon.

"Melon seeds by keeping improve only in the sense in which gardeners consider the plant improved—viz., less of stem is produced, and the fruit is matured earlier. Whatever checks the development of the early organs, the radicle and plumule, produces this effect, and this is effected by age in the Melon seed; its starchy component diminishes in quantity, being gradually converted into albumen. This is less easily transmuted to the soluble matters necessary for the nourishment of the parts first developed."

The greater portion of the seeds named I have tested, and find that as a rule the duration of their germinating power is in accordance with the above statement. Still I have found some exceptions, due probably to the imperfect manner in which the seed was matured. I may here remark that no one can prove satisfactorily the duration of the vitality of seeds that have been purchased. I have saved Beet seed, and have found that seed three years old germinated as quickly and produced a crop in all respects equal to that produced from one-year-old seed; but I have found a total failure with seed five years old. Parsley seed I have found useless when four years old. Onion seed I have found to germinate tolerably well when two years old, but I should not like to rely wholly on seed at that age, for unfavourable weather after sowing or imperfectly ripened seed in the first instance are contingencies that must be taken into account, either of which may cause a loss of crop. Seed of the Cabbage, Cauliflower, Broccoli, Kales, and Turnips is as good when two years old as when fresh from the seedsman, and I think seedsmen are justified in selling seed of those vegetables that is two years old, and probably they do so sell it; at any rate, I have found purchased seed refuse to germinate satisfactorily the following year, while seed of the same variety of vegetable saved myself has grown with freedom when three years old. Carrot seed should never be relied on the second year, neither should Peas nor Beans; and the mention of these reminds me

that trials in flower pots, which are generally commendable in cases of doubt, are not wholly reliable.

I have found Kidney Beans, also Peas, germinate in the genial soil of a flower pot placed in a temperature of 60°, but when seeds from the same parcels were sown in the cold ground their germination was much less free, and the after-growth and crops were disappointing. I was once requested by an employer to test some old Clover seed, of which he had a considerable stock. I sowed three pots, placing a hundred seeds in each, and placed the pots in different temperatures. In a cool greenhouse only fifty-five plants appeared, in a temperate vinery fifty-nine, and in a warm stove sixty-six. I advised that the seed be thrown away, but instead of that it was sown "double thickness to make safe." The crop was lost, for scarcely any of the seed germinated when sown in the wet cold field.

Old seed should never be sown until it has been tested, and then the pots containing the seed should be placed in a cool house, not in a warm moist frame, and then if a large percentage of the seed does not germinate freely and produce strong plants the seed should be rejected. If the young plants when they appear have a curled or crippled appearance the seed cannot be relied on for producing profitable crops.

The safest plan to adopt is to calculate the quantity of seed required, and purchase fresh seed each year. A very good table of the quantity of seed required for sowing plots of given size and drills of a certain length is given in Hogg's "Gardener's Year Book," and this table may be profitably consulted by those who lack experience in this matter.—A RETIRED GARDENER.

BRIAR CUTTINGS.

Is it good policy to bud cuttings of either Briar or Manetti the first season? and is not the old-fashioned way the best—viz., to let the cuttings make a year's root-growth and then plant them out at the proper distance for budding the following summer? This latter plan has in my opinion many advantages. The cuttings can be inserted thickly, and when taken up in the autumn they can be looked over, the roots dressed, and such as have not rooted well can either be thrown away or tried again. There is no waste of land, a very small space being sufficient to raise some thousands of cuttings, and when planted-out for budding they can be put in shallow, as they ought to be, at the right distance, well manured, and with the certainty of growing. Treated in this manner Roses make enormous growth the summer after budding, especially such as have lain dormant through the winter. I took up some plants this autumn budded on the Manetti which had made shoots reaching above my head with my hat on, and I am nearly 6 feet. The reason of this great growth the first summer is, that the stocks have two years' root-growth to support the buds, which, of course, cuttings budded the first season have not. Again, in budding them the first year there will be some blanks; many of them will not have made sufficient growth to enable the bark to part freely, and it is not easy to get down to the roots of such as have. This is very important. Deep planting is a mistake except on very light soils, but unless Roses are budded near the roots it cannot be avoided.—F. BOYES, *Beverley*.

GRAPES WITHOUT FIRE HEAT.

A SHORT time ago some of your correspondents seemed to doubt whether Grapes could be grown successfully without fire heat. Where there is a difference of opinion there is nothing like a little practical experience. A neighbour of mine grew Grapes for several years in a span-roofed vinery without any fire. The Grapes were principally Hamburghs, Buckland Sweetwater, &c. In fine summers the fruit, though rather late, was as good in quality as could be desired; but my friend had a mishap occasionally. Once he was overcunning and had his Vines too forward in the spring, and they were injured by a May frost, and once he had mildew in the house, but those occasions were quite exceptional. Very much depends whether the situation is open or not. If the house is shaded by buildings or trees, as a great many unfortunately are, success would be doubtful. It seems rather Irish to say so, but if I were about to erect an unheated vinery I should put a stove in it—*i.e.*, I should spend a guinea on one, not with the idea of forcing at all, but to keep out a May frost or dry up the house on a damp day. Without that the fruit must be used soon after it is ripe, for otherwise it could not be expected to hang long.—AMATEUR, *Cirencester*.

[Your Apple is Lucombe's Pine Apple.—EDS.]

YOUNG GARDENERS.

IT was very gratifying to young gardeners, and consequently to myself, to notice that the first number of the Journal for this year, as on former occasions, did not commence without reference to young gardeners. This, in my estimation, is one of the most important of subjects, as is easily seen by asking any or all of the following questions:—Where or who are those that will in future supply the tables of the nobles of our land with vegetables, plants, and fruits? Where are the future competitors of our great shows to come from? And last, but not least, Where are those who will in due time take the place of the numerous contributors to the Journal? and that will not be an easy matter, on account of the fluency and the general ability of its several contributors.

I quite agree with "A KITCHEN GARDENER" at page 4, where he remarks that "young gardeners in Scotland have a superiority, I think it may fairly be termed, over their neighbours in England with regard to their more abundant practice in the kitchen garden." There is an idea—and a true one in Scotland, and it may be in England too—that kitchen gardening is the most important branch of the gardener's profession, but in Scotland I am of opinion, practically speaking, it is regarded as of greater import than in England. I was conversing not long since on this subject to a good old Scotch gardener, when he remarked that "If the pot wasna aye keepit fu' there was something wrang," and I consider this remark very true. We cannot but take an interest in all the fine plants and various fruits grown, but then there is nothing we ought to look forward to with more pleasure than, as "A KITCHEN GARDENER" remarks, "to be amongst the vegetables." And now that 1879 has fairly begun I think young gardeners in general ought with great interest to devote more of their attention to this important department of horticulture. Let us not in the least be daunted by the glowing description at page 3, by Mr. David Thomson, of how a certain place was worked; but rather let us be possessed of energy to excel, which in combination with information that we may gather from your pages, make this year upon which we have entered a season of improvement, and consequently "a happy new year."—JAMES BOYD, *Mount Melville Gardens*.

PARAFFIN AS AN INSECT-DESTROYER AND FOR SECURING PEAS FROM MICE.

I QUITE agree with Mr. Taylor as regards the value of paraffin for the destruction of insect life, and as being one of the best preventives against the attacks of mice and other vermin on Peas. I generally soak the Peas about twenty minutes in paraffin previously to sowing them, and I find if the little intruders scratch up a few, on finding them unpalatable they turn away in disgust. The germination of the Peas is not the least affected by the paraffin, and I find it far preferable and cleaner than anything else.

A correspondent of the Journal remarked to me some months back that he tried my plan, and the result was he lost his crop of Peas. He said it was perfectly true that the mice did not destroy any of them, and he watched for their coming up in vain. On examining the rows he found the Peas quite rotten, and at once condemned the paraffin as a dangerous liquid. May not the decay of the Peas have resulted from sowing them in cold wet ground at so early a period as January, or probably bad seed? for I am convinced paraffin is not injurious when used in the way described.—HENRY OGLE, *The Gardens, Turnworth*.

GLOIRE DE DIJON ROSE.

I CAN fully confirm your Yorkshire correspondent's remarks respecting this grand Rose, Gloire de Dijon. If Lancashire Rose-growers were to have an election of Roses I do not hesitate in saying that Gloire de Dijon would be at the head of the list. The Rose-growers who attend the markets of Liverpool and Manchester with cut blooms during the season all say that Gloire de Dijon is the best Rose, not on account of its being such a profuse bloomer, but because of its hardiness, free growth, and delicious fragrance. Taking all its qualities together Gloire is the champion of Lancashire. I know that

it has a very poor character in the south, but here I have never heard one depreciating word against it, and I have never seen a Rose garden in smoky Lancashire without this valuable variety.—AMATEUR, *Leyland, Preston.*

APONOGETON DISTACHYON.

OLD but not frequently met with in gardens is this charming and accommodating aquatic. It thrives admirably in ponds or lakes where there is mud at the bottom and a depth of water of from 15 to 30 inches or more; but the plants appear to succeed best in shallow water, yet in our climate it must be of sufficient depth to prevent frost destroying the fleshy root, in which case the plant may be regarded as being perfectly hardy. It does not appear to flourish in streams with strong currents, but in still water thrives excellently, young plants from seed springing up all around the parent, whilst in moving or running water the two-leaved seedlings are carried away by the current, finding a lodgement at the sides of the stream, in pools of comparatively still water. It flowers profusely for a lengthened period, usually from June to late in autumn, and not infrequently in spring up to midsummer, when the plants go to rest and commence making fresh growth, and flower again in autumn. Fountain basins with the needful depth of water are well adapted for the plant; indeed any vessel with a diameter of 2 to 3 feet, 18 inches depth of water, and 6 inches of mud, loam rather strong at the bottom for the plants to grow in, suits it perfectly. It may be potted in 4 to 10-inch pots according to the size of the plants, and placed in water where required, but is best planted.

For an indoor aquarium it is simply charming. An inverted bellglass a foot in diameter with about 3 inches of loam at the bottom answers well, filling the glass with water and keeping it replenished; but a larger vessel shows the plant to better advantage. I grow the plants in pans containing about 3 inches of loam, there being about 9 inches depth of water. After May the plants are placed outside in the full sun, and water is afforded as required; but when the plants go to rest the soil being kept moist but not submerged. This may seem strange treatment for an aquatic, yet the plants flower all the more freely for the rest thus given. When growth commences, which is usually early in September, the plants are again flooded, and they commence flowering in October and continue in beauty all the winter. At the end of September the pans are placed in a light position in a greenhouse. The plant, however, is best displayed in a tank 4 to 6 feet in diameter, with 6 inches of loam at the bottom and 12 to 15 inches depth of water, where it luxuriates alike in greenhouse or in stove, and is one of the most delightful of plants, affording its lovely flowers in succession for one-half the year, and that when flowers are most acceptable for furnishing vases, &c.

The flower spike splits into two divisions, along each of which are disposed in two ranks, one on each side, the large pure white bracts, in the axils of which nestle the small inconspicuous flowers, remarkable, however, for their black centres, which tell well upon the clear white wax-like surface. Not the least of the charms of the flower is its delicious fragrance, comparable only to Hawthorn. The flowers last a long time when cut, and are beautiful for table or specimen glasses. The leaves are lanceolate, and float. Aponogeton distachyon ought to have a place not only in every garden but

Fig. 5.—APONOGETON DISTACHYON.

every home. Native of the Cape of Good Hope. It was introduced in 1788.—G. ABBEY.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 14TH.

OWING to the sudden return of mild weather this, the first meeting of the year, was a full and attractive one, and was well attended by horticulturists. The duties of the Fruit Committee were comparatively light, but the Floral Committee had a considerable number of plants and collections brought under their notice, and medals, certificates, and other marks of approval were recorded.

FRUIT COMMITTEE.—Henry Webb, Esq., V.P., in the chair. Mr. J. Muir, Margam Gardens, Taibach, sent a dish of very handsome specimens of Golden Winter Pearmain (King of the Pippins) Apple, which were remarkable for their high colouring. A letter of thanks was awarded. John Lee, Esq., Hammersmith, sent specimens of five imported varieties of American Apples—viz., Newtown Pippin, Seek-no-Farther, Baldwin, Spitzbergen, and Cranberry Pippin. The last is of good flavour; Baldwin was very tender in the flesh, and with a fine delicate flavour and perfume; Seek-no-Farther is not remarkable for flavour; Newtown Pippin was of good flavour; Spitzbergen was tender, sweet, and without much character. Messrs. James Carter & Co. of Holborn sent a dish of Ribston Pippin Apples from Halifax, Nova Scotia. They were firm and rather more tender in the flesh than fruit grown in this country, and the flavour though good was not so high as it is usually met with in our gardens. Mr. Charles Turner of Slough exhibited a seedling Russet Apple, which though good did not possess any extraordinary merit.

Mr. J. K. Borjanovics, St. Tamasch, Bacska, Hungary, sent a sweetmeat in the form of a sausage formed from the must of wine with kernels of Walnuts in the centre of it. It was said to keep till July, and in the spring to produce a saccharine efflorescence on its surface. In its present condition it did not meet with favour from the Committee, and it was recommended to be kept till the saccharine efflorescence is produced.

Messrs. James Veitch & Sons exhibited two varieties of Seakale—the Lily White and Fulham White. The former is of an uniform pale yellow colour, and the latter is tipped with purple. The Lily White is the earliest of all, succeeded by the Fulham White, which is again succeeded by the common variety. A letter of thanks was awarded. Mr. W. Pratt, The Gardens, Hawkstone, Shrewsbury, sent a box of very fine Mushrooms, to which a cultural commendation was awarded.

FLORAL COMMITTEE.—Dr. Denny in the chair. According to announcement Chinese Primulas constituted an important feature of the meeting. Several attractive collections and fine varieties of these plants were exhibited by Messrs. Sutton & Sons, Reading; Mr. Brown, Hendon; Mr. Cannell, Swanley; Messrs. Veitch and Sons, Chelsea; and last, but not least in interest, a group from the Royal Horticultural Society's Gardens, Chiswick. This last-mentioned collection consisted of twenty-five varieties, including the old smooth, small, "mill sail" varieties of thirty years ago. Great advances in colour were visible in some of these small flowers, many of them being decidedly red, and one or two of them velvety crimson, partaking of the colour of some of the rich border Polyanthuses. Some of the higher-coloured flowers were not well formed, and the trusses were not good; one variety, however, had large fringed flowers of great substance, colour bright reddish crimson. When this variety is "fixed" and is exhibited in good condition it will probably meet with a high mark of approval. It is a very promising variety. Some of the old-fashioned smooth-petalled flowers in their various colours were very attractive, and for cutting purposes are not excelled by the modern and massive fringed varieties.

Messrs. Sutton & Sons were awarded a first-class certificate for their new variety Ruby King, which has been previously referred to. The plant is extremely sturdy, and produces its highly coloured and fine flowers in profusion. The colour, especially as the flowers advance in age, is ruby crimson; the younger flowers deep rosy purple, distinct. Messrs. Sutton also exhibited an excellent strain of white Primulas; also a new Cyclamen (Reading Gem), for which a first-class certificate was granted. The flower is large and well formed; petals very broad and pure white, with rosy purple base; habit of plant dwarf, with round marbled foliage. Besides the certificates a silver Banksian medal was awarded to Messrs. Suttons for their fine contribution.

Mr. Brown's Primulas were represented by Vesuvius, rosy crimson; also by rosy purple and white varieties, all fine in flowers and habit of plants—an extensive and valuable group for which, including some well-berried Solanums, a small silver Banksian medal was recommended. Mr. Cannell's plants were very robust with bright rosy crimson large flowers—an excellent strain. Messrs. Veitch's were white and deep rosy purple, the plants being remarkable for their robust stems and fine trusses of large flowers produced well above the foliage. These plants formed the fringe of an attractive and extensive collection of forced shrubs and flowers. Lilacs, dwarf and floriferous; Rhododendrons, Azalea amœna and A. indica narcissæflora, Roman Hyacinths, Tulips, Crassula lactea, Tree Carnations, Lilies, fine baskets of splendidly grown plants of Daphne indica rubra, and dwarf plants densely covered with waxy white flowers with yellow stamens of the hardy deciduous shrub Staphylea colchica, for which a first-class certificate was awarded. This will prove very valuable for early decorative purposes, and is certain to become highly popular. Messrs. Veitch also exhibited some very good Cyclamens. A silver-gilt Flora medal was recommended for the collection.

Mr. Cannell again exhibited huge pyramidal trusses of Zonal Pelargoniums, remarkable alike by their large smooth flowers and brilliant and chaste colours. When all are so good it is difficult to select, but perhaps the best of the pure scarlets were H. M. Pollett (white eye), and Lord Giffard; the best dark scarlet, Col. Seely; the best purplish magenta, Dr. Denny; the best white, White Vesuvius; the best salmon, Salmon Vesuvius; the best cerise, Circulator; the best rosy pink, Mrs. Leavers; the best lilac pink, Louisa; the best oculate flower, Marguerite Ponton; and distinct from all the rest was Striped Vesuvius. A cultural commendation was worthily awarded for this splendid stand.

Mr. B. S. Williams exhibited a small group of Orchids, including the curious Masdevallia polysticta, with twelve spikes; Cymbidium affine; Odontoglossum Rossii grandiflorum, very fine; and the brilliant Sophronites grandiflora in excellent condition. Mr. Williams also exhibited Amaryllis Dr. Masters, a clear, rich, medium-sized flower of great brilliancy; colour vermilion scarlet faintly veined with crimson; the flowers, three on the stem, of great substance and of attractive form. A first-class certificate was awarded. Messrs. Osborn & Sons, Fulham, exhibited a large group of Aucubas well covered with berries, also Laurustinuses and Aralia Sieboldi variegata—fine shrubs, well adapted for various decorative purposes. A vote of thanks was awarded. Mr. G. Thomson of the Crystal Palace exhibited a fine basket of Crassula lactea, proving its value as a winter decorative plant, and was awarded a vote of thanks. Mr. Parr, Harrow Weald Park, Stanmore, exhibited Abutilon Yellow Prince, colour very bright, plant dwarf, and having dark green foliage, very promising; also Abutilon Vesuvius, a free-flowering branching variety with bronzy scarlet flowers and fine foliage. Mr. Spary, Brighton, exhibited heads of seedling Poinsettias, the prevailing colour of the bracts being cerise. A vote of thanks was awarded.

Mr. G. F. Wilson, F.R.S., exhibited Oncidium Widgreni, a small and rare Oncid, for which a vote of thanks was awarded. Mr. Douglas, The Gardens, Loxford Hall, exhibited a plant of the small curious Orchid Bolbophyllum auricomum, the flower somewhat resembling that of Dendrochilum glumaceum. The plant was referred to the Scientific Committee.

The splendid collection of ornamental shrubs and Conifers arranged in the entrance vestibule in December by Messrs. C. Lee & Son, Hammersmith, is still on view, looking as fresh, bright, and attractive as ever. The meeting was variedly interesting, and a very successful opening of the year.

GILBERT'S CABBAGE BROCCOLI.

"A KITCHEN GARDENER" is of opinion "that the Fruit and Vegetable Committee of the Royal Horticultural Society did very wisely when they awarded this vegetable a first-class certificate." He, and also the Committee, having tasted it were no doubt more competent to give an opinion than I and others who only saw the uncooked specimens at Kensington. In spite of this, however, but with all deference to the superior knowledge of the Committee either collectively or individually, I venture to express the opinion that the certificate was awarded rather too prematurely. Why in this instance depart from the usual excellent rule of testing vegetables at Chiswick? The flavour, we are informed, was excellent; so also would have been Carter's Heartwell Cabbage and many other varieties if served up equally well. To me the specimens sent appeared remarkably like an old friend, or rather enemy (they are usually treated as such) under a new name—often to be met with among Broccoli, and vulgarly termed mongrels. This season we have a few, and fortunately have departed from our usual custom of rooting them out, consequently are able to send specimens to the Editors of this paper.—W. IGGULDEN, *Orsett Hall.*

[The heads of Cabbage Broccoli appear identical with those that were exhibited by Mr. Gilbert, and certificated on account of their excellent quality. Yours were equally good when cooked, and distinct in flavour from any Cabbage. The Cabbage Broccoli was exhibited by Mr. Pottle in 1876, but was not cooked. It is a true Broccoli, having twisted incurving leaves, the midribs of which boil as tender and possess much of the flavour of a head of Broccoli. We are of opinion that

it has been produced by the constant selection for a late invisible Broccoli, its leaves being exactly the same as those of that variety, and in the endeavour to obtain extreme lateness the flower-head is rarely developed. The Committee grant certificates to old as well as new vegetables and fruits when they are exhibited in a form in which their qualities can be tested, and when their excellence is so great as to merit the honour.—EDS.]

NOTES AND GLEANINGS.

WE have received the following summary of the privileges of Fellows and Members of the ROYAL HORTICULTURAL SOCIETY for the year 1879. *Privileges of a Fellow paying four guineas a year.*—1, Entitled to personal admission at all times when the gardens are open to Fellows, and two yearly tickets, both of which are transferable, and which give the bearers admission every day, and to all shows, fêtes, conversazioni, and promenades, both at Chiswick and South Kensington. N.B.—The garden at Chiswick is closed on Sunday, and the garden at South Kensington is open from 2 P.M. Servants will not be admitted on Fellows' tickets to the shows or promenades. 2, The right of introducing two friends with the bearer of each ticket on every day of the week (show and special days excepted). 3, The power of admitting daily (Sundays excepted) eight friends by written order to the garden at Chiswick. 4, To visit the shows at twelve o'clock, being an hour earlier than the general public. 5, To purchase for £2 2*s.* each, transferable tickets, which confer on their bearers all the privileges of personal admission and of introducing friends that the Fellows themselves could exercise. 6, To receive forty orders giving free admission to promenades and on all days excepting show days and special days. 7, The right of purchasing, previous to the day of the shows or promenades, tickets at reduced prices. 8, A share of such seeds, plants, and cuttings of Vines and fruit trees as the Society may have in sufficient numbers for distribution by ballot or otherwise. 9, To purchase the flowers, fruit, &c., grown at Chiswick which may not be required for scientific purposes by the Committees. 10, To receive a copy of the publications of the Society. 11, The right of voting at all meetings. 12, The right (on giving notice in writing) of being relieved from the yearly payments while resident abroad. 13. Free admission to the reading room and Lindley library. 14, The wives or husbands of deceased Fellows, upon being themselves elected Fellows, are exempted from the admission fee. *Privileges of a Fellow paying two guineas a year.*—15, Entitled to personal admission, as in No. 1, and to one yearly ticket, transferable, admitting the bearer every day, and to all shows, fêtes, conversazioni, and promenades, both at Chiswick and South Kensington, and the bearer with two friends on all ordinary days. 16, Entitled to half the privileges mentioned in Nos. 3, 6, and 8. 17, The same as Nos. 4, 5, 7, 9, 10, 11, 12, 13, and 14. *Privileges of a Guinea member.*—Entitled to one ticket, not transferable, giving the owner admission on all ordinary occasions and to all shows and promenades at Chiswick and South Kensington, but not to the annual or special general meetings of the Society, nor does it entitle the Members to vote on any matters relating to the affairs of the Society. The Society being incorporated by Royal Charter, the Fellows incur no personal liability beyond the payment of their annual subscriptions. Entrance fees of new Fellows joining are suspended for the present.

—— A FINE plant of the distinct and charming MASDEVALLIA TOVARENSIS is now flowering in Messrs. Veitch's nursery at Chelsea. The plant is noticeable as having nearly thirty flower stems, several of them bearing three flowers and the majority two. The dwarf growth of this Masdevallia, its floriferous nature, its sturdy flower stems and spotless white flowers, render it unique in its genus. It is one of those plants that improve by acquaintance, and will prove very valuable for decorative purposes and for cutting for choice bouquets.

—— WE have received from a correspondent living at Chester specimens of flowers of CHINESE PRIMROSE which have the calyx developed in a remarkable way. It is large, bell-shaped, upwards of 2½ inches wide at the mouth, and deeply cut round the margin. The corolla is of the usual size, and is enveloped like a lady's face in great ruff. It is an exaggeration of that form which is met with in the common Primrose and called a Gallygaskin.

—— "W. C. W.," writing from Saltford, Bristol, on the SEVERITY OF THE FROST, says, "It may interest some of your readers to know that last night (January 11th) was the coldest night here for more than twenty years. My three minimum thermometers registered 6° above zero, or twenty-six degrees of frost. The greatest previous cold which I have registered on two occasions has been in 1860, December 29th, 7°; 1871, January 1st, 9°, with thermometers in the same position on each occasion."

—— JUST on the eve of going to press, we learn that the Lords Commissioners of the Treasury have appointed Mr. SADLER (who has long been connected with the Garden), to the Curatorship of the Edinburgh Botanic Garden, lately rendered vacant by the death of Mr. McNab.

—— MRS. C. LEGREW writes—"I have had my present GARDEN EDGING TILES more than ten years. They were removed from a former residence, where they had been for several years previously. They are cable pattern, black, and when painted green make a good imitation of a border Box edging. The tiles I had from Mr. Rosher, Albion Wharf, Holland Street, Blackfriars."

—— MR. MARTIN J. SUTTON, managing partner of the firm of SUTTON & SONS, Reading, has been named Chevalier of the Legion of Honour by the French Government, as a special recognition of the merits of the exhibits of that firm at the Paris Exhibition, and of the services thereby rendered to horticulture and agriculture. This is the only instance in which this distinction has been conferred on any English exhibitor of seeds.

—— AN Irish correspondent states that he purchased seed of LISIANTHUS PRINCEPS in 1872, but did not succeed in raising any plants from it. He asks if others who obtained a portion of the seed that was distributed during the year named will communicate their experience therewith, as he has not heard of any plants being established.

—— SEVERE as was the weather during what is termed the "first FROST" of the winter, and which terminated immediately after Christmas, it is probable that the second frost which terminated during the night of the 12th inst. (Sunday last) in the neighbourhood of London, will prove to have been the more injurious to vegetation. The first frost came on gradually, and was accompanied by snow; the second came suddenly, and instead of there being snow to protect the crops they were exposed to the high and penetrating easterly winds that prevailed for several days. So boisterous was the wind and dry the ground that dust was blowing in clouds on the roads, while the river Thames presented an appearance that has not been equalled during the present generation, it being almost completely covered by large blocks of ice that floated up and down with the tide, impeding, indeed almost totally arresting, navigation. We quite expect to hear that much injury has been done by the frost that has just suddenly terminated in the south of England.

—— THE WINTER in Co. Down, Ireland, writes "B. G.," has been unusually severe. The like has not been seen for a quarter of a century, and much damage is anticipated amongst shrubs, much injury being perceptible already. The frost has also done much damage to many plants in unheated houses and frames, although well covered.

—— WE have received the following from an old correspondent relative to PARAFFIN AS AN INSECTICIDE:—"The fashion of applying paraffin to plants will explode; it is the nastiest thing in existence. Nothing looks better than oiled foliage for a time, and some will find to their cost how much washing off the paraffin takes. Every drop remains where it falls. I thought my Camellias fine, when one day Mr. Richard Smith's traveller made a dead stop at them and inquired what I had been doing to the Camellias. I told him I had been using diluted paraffin for scale. 'Have it washed off,' he replied, 'or you will kill them. There is nothing more clogging to a plant's porous system than oil, and every particle you apply remains on the plants.' I believe Mr. Petch was right, and I shall apply no more oil to my Camellias."

—— THE death is recorded of a veteran nurseryman, MR. JOHN HOLMES, who was for many years a partner in the extensive nursery firm of Fisher, Holmes & Co., Sheffield. Mr. Holmes died on the 4th inst., at Whittington Hill, Lichfield, in his eighty-first year.

—— THE ARTIFICIAL FLOWER INDUSTRY OF FRANCE is one of the most interesting in that country, and was well represented at the Paris Exhibition. The number of manufac

turers of artificial flowers throughout the country is about three thousand, producing annually upwards of 25,000,000f. of flowers and 15,000,000f. of ornamental feathers.

ROSE HEDGES.

No more delightful feature can any garden contain than a neat and an effective rosery. There are, however, many considerations connected with the formation of a rosery proper, not the least of which are knowledge of the capacity of the soil for the growth of Roses, the choice of such varieties as are likely to thrive in such soils, and also of varieties that are adapted for the plan which is to be followed or in contemplation.

It unfortunately often happens, and especially for the gardener, that the first idea regarding the formation of a rosery is forwarded to the mechanical worker in iron and wire: hence a skeleton is provided and erected, to which the gardener is supposed to work, rather than as it should be—the latter has the ordering and direction of all details from first to last. Such an illustration of a so-called rosery is to be found in many parts; sufficient for our purpose, however, is a reference to that at the Crystal Palace, Sydenham—the Rose Mount, which has so dissatisfied many upon making first acquaintance therewith.

No good or proper rosery ever existed but such as had Roses pure and simple pre-eminent and all-commanding. They must be grown and seen in all their beauty, or they will fail to afford full satisfaction. The masses of one-season Roses—such, for instance, as Charles Lawson, the Queen of the Prairies, and Chénédolé, or still more Blairii No. 2—are offsprings of such as are seen in the defiles of Persia and Hindostan, and they aptly illustrate what we conceive to be the "Rose at home," luxuriant and happy. To apportion it

Fig. 6.—ROSE HEDGES AT VALENTINES.

"temples" of painted wire, to which its branches are closely drawn, is to our mind a prostitution of the cultivator's skill.

Where the planner of a rosery understands his subject, working details together with skill and taste, a great effect is at all times assured. Sixteen years ago (see *Journal of Horticulture*, December 30th, 1862) an old contributor to our pages gave, as a happy Christmas thought, a paper and illustrations how to make a Rose hedge. The writer of that paper has lived to produce such features in duplicate, and we to-day give a bird's eye view of his last effort thereat (fig. 6).

At Valentines, Ilford, the seat of C. M. Ingleby, Esq., LL.D., M.A., a rosery has been formed, having as it were a boundary fence of its own. The hedges are formed some 5 feet in height by about 4½ feet through. They are, as shown in the accompanying engraving, well furnished, and as complete in this respect as hedges can well be. Within them are four oblong Rose beds, which are edged with densely grown very dwarf hedges of the lovely small double white Scotch Rose. The beds are filled first with a row of dwarf standard Roses, having two rows of dwarfs on either side. In the centre of the rosery is also to be seen a "temple," which as a central object gives due weight to the whole. The outer hedges are, as will be perceived, merged together by arches which, sprung over the walk, form an appropriate mode of ingress and egress. These arches Mr. Earley has covered with Roses and Paul's Crimson Thorn in combination, and the effect of the crimson blooms of this Thorn and those of Gloire de Dijon in admixture is extremely good.

If we turn our attention to the varieties we find that such as the following were freely planted—Charles Lawson, Blairii No. 2, Chénédolé, Madame Hardy, Duc de Wellington, and the good old Gloire, which were used plentifully as dwarfs, all but the Duc being on their own roots. Then, whether worked on Manetti or otherwise as dwarf Roses were many plants of each of the following—François Louvat, Gloire de Santenay, Gloire de Vitry, Hippolyte Flandrin, Impératrice Eugénie, Jean Rosenkrantz, John Hopper, John Keynes, La France, La Duchesse de Morny, La Reine, La Ville de St. Denis, Lady Suffield, Louise Peyronny, Madame Alice Dureau, Madame Boll, Madame Boutin, Madame Charles Wood, Ma-

dame C. Crapelet, Baronne de Rothschild, Madame Marie Cirodde, Madame Moreau, Madame Rivers, Mdlle. Therese Levet, Madame Vidot, Mdlle. Annie Wood, Mdlle. Bonnaire, Mdlle. Marguerite Dombrain, Mdlle. Marie Rady, Marie Baumann, Maréchal Vaillant, and Maurice Bernardin; whilst as standards La France, Marie Van Houtte, Madame Lacharme, Paul Neyron, Madame Marie Cointet, Madame G. Schwartz, Reynolds Hole, Madame Marie Finger, Perle des Jardins, Cheshunt Hybrid, Thomas Mills, Belle de Lyonnaise, Princess Beatrice, Edouard Morren, Duchess of Edinburgh, Marquise de Castellane, Louis Van Houtte, Etienne Levet, François Michelon, Comtesse d'Oxford, Mdlle. Eugénie Verdier, Catherine Mermet, Ferdinand de Lesseps. Freely planted also have been the Austrian Copper Briar, Sweet Briar, single-flowered Boursault, Maréchal Niel, &c.

Let the reader fancy these, the wealth of our national flower, blooming happily together, forming masses of beauty and fragrance, and he will exonerate us from saying too much regarding what might be done when the capacity of soils to maintain, varieties to grow, trelliswork to cover well and properly, are combined and wrought into effect.

The foliage display to the right of our sketch is really a wall clothed with hardy climbing plants; at its base are Anemone japonica alba, and a remarkable mass of Lily of the Valley. The water with the Nymphæas recumbent on its bosom affords but a small item of such features to be met with at Valentines.

EAST YORKSHIRE WEATHER RECORD FOR DECEMBER.

THE following is the Rev. A. T. W. Shadwell's (Langton) monthly report:—Mean height of barometer corrected, 29.78 inches. Highest on 4th and 24th, 30.21 and 30.24; lowest on 18th and 19th, 29.15 and 29.10 inches. On seven days only did the pressure reach 30 inches. Thus it was remarkably low for a month that was frosty throughout. This may be accounted for by the fact that the great cold was not brought to us by northerly or easterly winds, which raise the barometer, but was the result of the vertical descent of a highly cooled stratum of air bringing with it frequent and copious snowfalls, which invariably depress the mercurial column. The mean temperature of the month was 26.7°, or 12° below the average. Every day except the four last was below the mean, as indeed it had been continuously from November 18th onwards. From the 1st to the 9th the cold gradually deepened, and on the 10th the mean temperature of the twenty-four hours fell to 19°, and thenceforward the frost was severe for fifteen days, finally turning into a thaw on the night between the 25th and 26th, on which last day the mean rose above freezing point, to sink again on the 27th to 27.75°. The mean of the last three days was 1.05°, 2.05°, and 8.05° above the average. The mean daily temperature of the fifteen coldest days consecutively was only 18.04°, an extraordinary figure for any month in Britain, and especially for the first of the winter months. The mean temperature of a period is the true index of the intensity of the cold, because it shows not merely the lowest point attained, which may be reached for one hour out of the twenty-four, but the duration of the abnormal temperature.

Now, in 1878 low night readings were succeeded by impenetrably foggy and dark days, whereas in December, 1874, the last cold month preceding that just ended, the days were bright and sunny, with maxima in shade mostly above freezing point and reaching 40°. The mean temperature of the coldest fifteen days, and those not consecutive, of December, 1874, was 22.1°. Twice in that month the greatest cold exceeded the last month's greatest, and one whole day, the 31st, was lower by 5° than the coldest of December, 1874, the mean of that day having been only 4½°, between the extreme lowest, 4½° below zero and 13° above, the highest day temperature. Last month the lowest absolute night temperatures taken in the air in shade were 2° on 12th, 2½° on 15th, 4° on 20th and 21st, and 3° below zero on 25th. The coldest entire day was the 12th, with a minimum of 2°, a maximum of 17°, and a mean of 9½°; the next coldest was 24th, with a mean of 10°, and Christmas day showed a mean of 16½°; on 13th and 15th the mean was 17°.

Since February, 1855, there has occurred no month of a mean temperature 12° below the average. But that was altogether the coldest year on record all over England; on the 22nd of that February the temperature here at two different levels stood at 15½° and 13½° below zero. Cold winters have been, ever since records were kept, decreasing in frequency, and the English winter is now over 2° permanently warmer than between 1771 and 1800, while January is fully 3° warmer on an average. Total fall of moisture 2.210 inches, of which 1.390 was due to snow; greatest fall on 23rd and 26th, 0.365 inches. The sum of the year's fall is thus brought up to 29.410 inches, exceeding the average of twenty-five years, which is 27.191, by 2.219 inches. Evaporation was almost nil throughout the month, the two last days only showing a difference of 2° between dry and wet bulb. The Ouse froze over on the night of the 11th, and the Derwent was blocked in its lower course. Many other rivers froze over, and navigation entirely ceased on the Humber. December was as remarkable for its calmness as for its cold.

During the frost the wind rose only once to six on the sea scale, or half a gale on the 17th, and once to four on 21st. But there were gales on the last three days from the S.W. and W., one reaching eight. Currents distributed as follows, as far as could be ascertained by watching the upper strata of air, for on the surface it was mostly calm to an unusual degree: S. to W. 7, W. to N. 14, N. to E. 3, E. to S. 1, and calm on six days. Thunder and lightning frequently occurred in other parts of the kingdom, but none was observed here. The sky was wholly overcast, and in great measure from fog, on fifteen days, more than half on two, half clouded on two, and cloudless, or nearly so, on twelve. Sunshine on week ending 7th, 13.5; second week, 8.05; third week, 29.05; fourth week, 16.05; and on last three days, 7.25; as against Greenwich with 3.4, 3.6, 1, and 3.6 hours. The week ending 21st is, of course, the least enlightened by the sun's visible presence, the amount of sunshine possible being 54.1 hours. The sun rises here on the shortest day at 8.27, at Greenwich 8.6. The river Derwent stood 4 feet above summer level on 7th, 2.2 on 12th, 13 inches on 20th, and shrank almost to that level on 25th; on 27th it rose to 1.7, and on 31st to 10 feet. The temperature of the open water declined gradually from 40½° to 32½°, when the surface froze over.

REVIEW OF BOOK.

Rose Annual for 1878-79. By WILLIAM PAUL, F.L.S., F.R.H.S.

THIS interesting and instructive "Annual," which has just been issued, is the fifth consecutive one which Mr. William Paul has published. It is a great improvement on all its predecessors, as it contains four coloured plates of wonderful excellence, so well do they convey to the lover of Roses a fac-simile of the varieties which they represent. We never saw a better or truer plate of any Rose than that of Jean Liabaud. This comparatively new Rose is a great advance on all other dark Roses, and Mr. Paul did well to include it in his quartett.

The first Rose figured in the book is one of the gems which Mr. William Paul first exhibited last year—namely, the Duchess of Bedford. As to form the figure is very truthful; the colour is that of the Rose in the autumn. In the summer we have seen the bloom even brighter than it is represented in the plate, and certainly Her Grace need not be ashamed of her namesake. This Rose gained the premier prize at the National Rose Society's Show at the Crystal Palace as the best new Rose of the year. We find that this Rose and Countess of Rosebery were raised by Mr. R. B. Postans, but the raiser's name was not attached to the blooms when they first obtained their honours.

The second Rose figured in the "Annual" is a new Tea-scented one—Souvenir de Madame Pernet. This Rose was introduced by M. Pernet of Lyons, to whom we are indebted for that grand Rose Baronne de Rothschild. It is in form and colour rather like Comtesse de Nadaillac, but larger than that flower as grown by anyone but Mr. Bulmer. Mr. Paul describes it as "a very fine flower, something in the way of Souvenir d'un Ami, but sufficiently distinct from that old favourite to be an acquisition, even to a limited collection." We entirely agree as to its distinctness from this Rose, as we can trace no resemblance to it from the plate, as it is an expanded globular flower, and d'un Ami is a pure cup. The new Rose is, however, a lovely Tea as seen in this "Annual," being as to colour a mixture of salmon pink and canary.

The last plate also represents a Tea Rose—Madame Lambard. This is, or appears to be, something quite new in colour, in which respect we should say it was like Comtesse de Nadaillac also, and in form like Marie Van Houtte. Mr. Paul describes the flower as salmon pink shaded with rose, large, full, and globular, but the prevailing colour is a rich yellow; indeed, the only fault we have to find with the "Annual" is that the descriptions of the plates and the plates themselves seem to be

somewhat opposed to one another, so far at least as the Teas are concerned. The dark Roses are very well described.

Mr. Paul gives also a very interesting summary of the year's Rose shows, and furnishes us with a useful list of the prize-takers at the great shows. No doubt Rose-growers will be glad thus to keep a record of their successes in a portable and pleasant shape.

There is one paragraph which concerns the National Rose Society's Show at the Crystal Palace against which we should like to offer a mild protest. "We never heard so much discontent expressed as at this Show, and this not by one class of exhibitors only. There was what we can speak of in no other terms than general grumbling. We say this in no unfriendly spirit, but because we wish to impress on the managers of this Society and Show the necessity of amendment." That there was some grumbling we admit, but Mr. Paul must have heard more than we did amongst "exhibitors." Some of them were very unsuccessful, but we think they did not grumble; others were successful, and we did not hear them complain. There was no doubt a little disappointment among some of the Judges and officials that no luncheon was provided, but most of the Judges knew the reason of the economy, and were quite content to save the finances of a Society which was no means then in smooth water.

The "Annual" contains articles on Tea Roses by "WYLD SAVAGE," which certainly are by that gentleman; and on Rose stocks by the author. There is also an interesting article entitled "A Mausoleum of Roses," translated from "Le Nord Est Agricole et Horticole." The Rev. W. F. Radclyffe and "R. B. P." also contribute articles, and Mr. Arthur Paul gives us a list of the best white Roses, and Mr. W. D. Prior gives us a long and interesting gossip about Rose raisers.

The "Annual" on the whole is well written, the plates are splendid, and our Rose-admiring readers cannot do better than purchase a copy.

CHAPTERS ON INSECTS FOR GARDENERS.

No. 24.

THE small moths that are included in the Tineina group furnish a remarkable illustration of the "power of littles." In themselves utterly insignificant, and both in the imago and the larval condition easily killed, by their numbers and by their perseverance they are enabled to inflict much damage upon things valuable or useful to man. Our race has been no stranger to the ravages of some of these species from an early period in its history, for the oldest book in the Hebrew Scriptures has two singular references to the moth, presumably to the clothes moth—*i.e.*, to one or other of the species so destructive to wool, silk, and fur, and with which Orientals from their habit of storing up costly garments have always had an unpleasant acquaintance. In Job iv. 19 man in his feebleness is compared to such an insect, a form of figurative language not uncommon in the East; and in chap. xxvii. 18 the abode of a wicked man is said to resemble the slight fabric that the caterpillar of a clothes moth dwells in. Other references to the species, which take the form of warnings against a propensity to hoard, might be quoted; and we have heard a modern divine, in commenting upon some such verse, caution people to beware of the moth with its "tiny teeth." In point of fact, however, the larvæ or caterpillars have no teeth, properly speaking, any more than their relatives in the Order, all their achievements being performed by the conjoint work of a pair of strong mandibles which move horizontally, and a pair of jaws; the aid which the tongue gives larger animals in the act of biting and eating, caterpillars get from the minute flexible organs called labial palpi. The muscular power in many of these larvæ is very great, but it nearly vanishes when they appear as perfect insects, though some species show much dexterity in hiding themselves or in creeping through small apertures, so that they may deposit their eggs.

The Tineina exhibit as moths great variety of colour. In size none with expanded wings much exceed an inch, most of them under it, and some scarcely reaching the sixth of an inch. All the wings are usually narrowed, with long fringes, longer in the lower pair of wings than in the upper pair. The antennæ are short, except in the singular family of the Longhorns, where they are several times the length of the body. In habit the caterpillars, even in the same genus, exhibit great diversity: they are to be found feeding upon dead animal and vegetable substances, also upon all parts of plants and trees in a state of growth. A host of minute species mine leaves and twigs, and numerous species construct cases or moveable habitations from their food or some object near it; others, again, make dwellings that are not moveable, as by doubling or twisting leaves. A few of the larvæ are brightly tinted, but most are of a dull white, grey, or brown. The number of legs is generally sixteen, occasionally these are almost invisible. In some species of the Tineina we find that the eggs are remarkably large for the size of the insects.

We may briefly dismiss the species with which the gardener has least concern, because he experiences only the same annoyance from them that the rest of mankind do; others, however, are especially his foes. These form the family of the Tineidæ; and while some, like T. pellionella, are inclined to feed upon almost anything that comes handy, others have their special resorts—T. tapetzella for instance, which is said to prefer rugs and the linings of carriages. The only remedy where they have made an attack is the baking, or destruction, of the articles infested. An odd list might be given of strong-smelling substances that are supposed to keep away the moths. A curious instance was brought under our notice not long ago, where a species had unobserved committed sad ravages in antique tapestry of great value. We may note that, in opposition to the "shutting-up" plan, it has lately been argued that clothes moths seldom touch articles that are allowed to have plenty of air. The larvæ of a Tinea are said sometimes to attack matting, perhaps this would be T. rusticella; but as a set-off to any injury these may do in gardens or houses those of T. pellionella, and probably of other species, feed upon living pupæ of insects when they want a little variety in their diet. The farmers have cause to complain of one, Tinea granella, which in some years is very common. The caterpillars feed within the ears of corn, devouring the grains and avoiding the exterior, so that the ears appear sound. A dozen or more will subsist in one ear, and when the corn is stored up it is their peculiar habit to quit the grain in order to burrow deep into the floor, there to form a nest for the chrysalis.

The Little Ermine (Hyponomeuta padella) is one of the most familiar of all the Tineinæ to the ordinary observer of insects, for every summer in varying numbers the white and black larvæ display themselves on the webs with which they have bespread the Hawthorn bushes, seeming, we would think, to rejoice in the havoc they are making. It is not merely the destruction of the leaves we have to complain of, but the disfiguring webs, which tend also to check the growth of the shoots, and which are frequently extended by the larvæ over adjacent shrubs or trees. Though more generally found upon the Hawthorn, the species is one of the recognised foes of the Apple, and it is occasionally found on that tree, and even on the Pear and Cherry. The strength of the silken cords spun by these caterpillars proves that they are made up of several threads united; probably one end they serve is to protect the caterpillars in a measure from the assaults of birds. The eggs are laid in a small mass upon the buds, and some of the birds that we observe busy in pecking Hawthorn buds during spring are engaged in destroying these eggs we may presume, and mnny thousands of the caterpillars are killed by the changeable weather of May or June. Very generally the species is permitted to feed unmolested; but a check should be given to it, since the webs are removeable from the bushes, an operation which is best performed just before the creatures are ready to undergo pupation; nor is it a matter of difficulty to kill some of the moths, conspicuous though small. H. padella is one of those moths which can make itself at home in the midst of London, and in a small garden plot the caterpillars will sometimes run their webs over the doors and windows near, or stretch them from wall to wall.

The moths popularly called Flat-bodies, of the genus Depressaria, illustrate another group; in size they are amongst the larger Tineina. D. nervosa has been designated in English from the Carrot which the caterpillar frequents, as well as the Parsnip; but as the attacks of the species are limited to the flowers of the plants, the chief result they produce is the diminution of the quantity of seed. Another Depressaria attacks garden flowers of the Composite order, causing the blooms to fall to pieces at the time they are likely to be gathered for bouquets. Most of these species are of dull colour, but one known as D. ocellana has on the grey wings a deep red mark resembling the capital S with a white dot within. Most of the caterpillars are grey or brown dotted with black, and remarkably active. No injury is done in gardens by the pretty Adelæ or Longhorns. A lively and not uncommon species is named after the great naturalist De Geer. The upper wings of A. De

Geerella are beautiful to the unaided eye, but a moderate power shows them covered with white, purple, and gold. A. viridella, of greenish-gold tint, is abundant in and near woods. Having such lengthy antennæ it is surprising how the moths manage to thread their way amongst the branches as they do. In the genus Gelechiæ there are nearly a hundred British species, as some reckon. Nearly all the caterpillars live concealed, most between rolled leaves or in the buds and flowers. Some, however, are leaf-miners, and a few hide in the stems or feed upon the roots of plants. Scarcely one species can be said to be notably injurious to horticulture, though several might prove so if they occurred in greater abundance. As a sample of one that is annoying rather than seriously hurtful we cite G. subocella, which as larva inhabits the calyx of the Marjoram or Origanum. If the flowering tops are examined when the fruit is forming, the singular cases of the caterpillars may be detected. These are formed of the dry sepals, the case being lengthened as the caterpillars. All the Gelechiæ are rapid fliers. Some of the moths run very briskly along twigs and across leaves.

Caterpillars of the genera Coleophora and Gracillaria construct cases in which they live and feed. Some of these resemble flat purses, others have been compared to cigars, and others again are cone-like. A common example of a Gracillaria is the Confluent Barred (G. syringella), an elegant moth, but which in its early stage helps to make our Lilacs far from elegant; and we may sometimes count by hundreds the leaves rolled by this caterpillar on a single bush, each of which finally withers off. And there appear to be two broods yearly in average seasons. G. omissella forms bladders on the leaves of Artemisia vulgaris; and G. auroguttella, which feeds on Hypericum perforatum, contrives out of a single leaf an ingenious double cone. A tiny white species that wafts about like a snowflake—Coleophora ibipennella—lives as a larva on the Birch, in brown cases resembling a pistol in miniature. C. currucipennella makes a case narrow at the mouth and large at the base. The black case of C. conspicuella is black and shaped like a pea-pod.

We must pass with slight mention the many species of the genera Lithocolletis and Nepticula, which furnish other instances of leaf-rollers or leaf-miners. Some of the larvæ are so minute that a single leaf serves to feed and hide half a dozen of them. A favourite climber, the Honeysuckle, is visited and disfigured by two or three species of Lithocolletis; some also mine the leaves of fruit trees and of the Rose. The small group of the Plumes closes the succession in the order Lepidoptera; these have the wings cleft or divided usually into fives. The common white Plume is seen about gardens, for the caterpillar feeds on the Convolvulus. Another species has been reared on the leaves of Pelargoniums, but it is less frequent.—J. R. S. C.

OUR BORDER FLOWERS—JEFFERSONIA.

THE two-leaved Jeffersonia is one of the choicest, and perhaps one of the rarest, of our border flowers to be found in cultivation. Why a plant with so many attractive properties is not frequently seen I am at a loss to conceive. It is said to have been introduced to our shores as far back as the year 1792, but I doubt whether there are as many plants to be found in cultivation in this country as the number of years that have intervened since its introduction. There is something in the appearance of this plant that at once engages the attention; its beautiful large white flowers and conspicuous yellow stamens and stem-clasping leaves fix an impression on the mind that is not soon forgotten, and the plant also commends itself to our notice by its dwarf habit.

Jeffersonia diphylla in some cases may be termed miffy, but when well grown it is a real hardy gem. One of its greatest recommendations is its being in bloom with us in warm places in early and mid spring, when all comers are welcome. To succeed with it, it must be cared for, not be trifled with. In its native home it inhabits damp woods, which indicates to us that it enjoys partial shade; thorough drainage and moisture when required are essential to its well-being. It requires a compost of rich fibrous loam and peat in equal quantities, a free admixture of sharp sand, and a sprinkling of charcoal dust to keep the soil sweet. It is increased by division and seeds in the spring. When seeds are to be had they should be sown in light soil in a cold frame. When the seedlings are large enough to be handled they should be potted and eventually planted out on a shaded rockery, to which the Jeffersonia is a grand acquisition. It is a native of North America, and was named by Barton in compliment to Mr. Jefferson, President of the United States.—VERITAS.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Mushroom House.—It often happens about this time that all the space available for Mushroom beds is occupied, the greater part of the beds being in a bearing condition, so that fresh beds for maintaining a succession in March and April cannot readily be made. Under those circumstances we have found it advisable to hasten the producing capabilities of the earliest beds by copious waterings, producing a quick supply of Mushrooms, and then to remove the exhausted beds. Materials should be collected at once for the making of fresh beds at the close of this or beginning of next month. Fresh droppings from horses fed upon dry food only are suitable. They should be thinly placed in a shed or other dry place so as not to heat, but if the bulk be considerable throw the droppings into a heap, and when warm and giving off steam, the interior of the heap having parted with about half its natural moisture, the bulk should be turned so that the outside is placed inwards; and when that is heated, the material being about half dried, spread the heap out thinly upon the floor so as to prevent further heating. The drying of the material in that way prevents overheating, and consequent overdrying of the beds when made up. Care should be taken not to overwater beds coming into bearing, but to keep them regularly moist, keeping the atmosphere also moist by sprinkling the walls, &c., with the syringe as required, and maintaining a temperature of 55° to 60°.

FRUIT HOUSES.

Vines.—Late Grapes well ripened of the thick-skinned kinds may be cut with as much wood as can be spared. Do not remove the wood above the bunch, but retain it as far as practicable, as we find the Grapes keep more plump with wood beyond the bunch than without. The ends should be placed in bottles filled about three parts full with rain water, placing a lump or two of charcoal in each bottle. The bottles will require to be fixed in a slanting position, which needs no expensive contrivance, but simply a rest for the bottles and a strong lath, to which they may be secured with string in a leaning position. It is necessary that the bunches do not touch each other. Scrutinise for and remove all decayed berries, securing as near as possible an equable tempera ture of 45°.

Prune all Vines from which the Grapes have been cut without further delay. In the matter of performing that operation some are careful only to cut to a plump bud—the best bud, from an idea that the largest eyes afford the largest bunches, but except for securing monster bunches such practice is not desirable, as from eyes nearer to the main stem the bunches will be large enough for table purposes, and will be more symmetrical and compact in form, and having larger and more even-sized berries than the bunches above referred to. Large loose bunches are as a rule uneven in size of berry and finish badly. Two eyes we consider a safe rule to adhere to in pruning, and when a departure is made from it in quest of large bunches select a plump eye as near to the main rod as possible. In course of time the spurs by this plan become very long and unsightly, necessitating the frequent running up of new rods, whereas by close pruning the need of doing so is considerably lessened. The cuts, so soon as the pruning is finished, may be dressed with "knotting" to prevent bleeding. The loose bark should be removed, and the rods washed with soapy water, 8 ozs. to the gallon, which, unless there has been an attack of red spider, is all the dressing required; but if those and other pests have infested the Vines, dress the canes with 1 lb. of soft soap, half a gallon of water and the same quantity of tobacco juice, a quarter of a pint of spirits of turpentine, and as much flowers of sulphur as will make a cream, applying the mixture with a brush, rubbing into every angle. This is fatal to every kind of insect—red spider, thrips, scale, and mealy bug, and subdues mildew. The border should receive a top-dressing of good loam with a liberal addition (about a fifteenth) of crushed bones, the old soil being removed to a depth of 2 or 3 inches. The house should be thoroughly cleaned, and painted if required. If the borders are not satisfactory no time should be lost in lifting the roots and relaying them in fresh compost, making sure that the drainage is complete, for the Vine requires abundance of water during growth, and without thorough drainage the water causes a state of the soil more disastrous than drought. If the Vines are planted inside, and have the range of inside and outside borders, the renovation may be effected without loss of crop, remaking the inside border one year and the outside the year following. Admit air very carefully to early houses, taking advantage of every favourable opportunity to ventilate moderately, admitting a little air at 75°, running up to 80° or 85°, closing at 80°, maintaining a night temperature of 65°, falling to 60° on cold nights.

Peaches and Nectarines.—Continue to impregnate the blossoms in the earliest house, using a camel-hair brush or feather, and if possible introduce a hive of bees, which will enjoy the spring-like temperature and fertilise the flowers very much better than

is done by shaking the trellis. When the fruit is well set syringing may be resorted to both morning and afternoon, but in dull weather syringing in the morning will be sufficient, damping the house in the afternoon, it being important that the foliage be dry before nightfall. The water employed for this purpose must be of the same temperature as that of the house, the inside border being kept well supplied with water of about the temperature of the house. Disbudding will soon require to be attended to, but it must be done carefully at this early season, it being better to remove a few shoots daily from a tree than many at a time at more distant intervals, which last practice gives a check to the roots and is not favourable to the swelling of the fruits. The night temperature may now be maintained at 55° to 60°; 60° to 65° by day, 5° less as the minimum when the weather is severe and dull, admitting a little air at 65°, not allowing an advance over 70° without full ventilation, closing at 65°, always excepting a small crack left on at the top of the house constantly. Syringing must cease in the house started early in the year when the blossoms show colour, but damping of every available surface in the morning and afternoon must be practised; for though a confined atmosphere is not favourable to Peaches in any stage of their growth, a dry atmosphere is equally pernicious, promoting excessive evaporation, the blossoms equally with the foliage and fruit being invigorated by atmospheric moisture, provided it is not stagnant. See that the border is in a thoroughly moist state. We would again urge the necessity of completing without delay the pruning of the trees in the latest houses, dressing them with an insecticide and tying the shoots to the trellis, the borders being forked over, any loose soil removed and replaced with fresh loam, an admixture of wood ashes a fifteenth part, and a twentieth of half-inch bones being beneficial. If the borders are at all dry give them a good watering.

Pines.—The plants which completed their growth early last autumn, and have been treated as before advised for starting so as to throw fruit early in the year, will now be doing so; if not, they must have extra care and attention, which will be fully repaid by the fruit ripening at a time when it is most valuable. Take every advantage, therefore, of favourable weather to afford increased heat during the day; allow the temperature to rise to 80° before giving air, then allowing it to further rise to 85° or 90°, closing at 85°, the night temperature being raised to 70° to 75° by day by artificial means unless the weather be dull and cold, when 5° less will be more suitable. Corresponding moisture will need to be maintained, not seeking it, however, by syringing overhead or over the pipes when very hot, but by damping unheated surfaces two or more times a day. The heat at the roots should be kept steady at 85° to 90° for Queens, other varieties 5° less. Examine the plants once a week, watering such as require it with weak guano water liberally at the same temperature as the roots. Fruiting plants or those about to start into fruit should have a night temperature of 60° to 65°, 65° by day in dull weather, and 70° to 80° by day with sun, ventilating a little at 75°, and closing so as to enclose a little sun heat, at which time sprinkle available surfaces. Succession plants keep slowly moving in a night temperature of 55° to 60°, 60° to 65° by day with an advance from sun heat of 5° to 10° and moderate ventilation, it being safer to err on the side of moderate dryness with these plants for the present rather than afford too much moisture at the roots or in the atmosphere.

GREENHOUSE.

One of the greatest evils in plant culture is the maintaining of high night temperatures and exciting the plants into growth prematurely by artificial heat; 40° is a sufficiently high night temperature, thereby not breaking the rest by unseasonable growth. This more particularly applies to hardwooded plants. Heaths like a low temperature, they being easily excited by artificial heat; Azaleas likewise should be kept cool, but under no circumstances must they be allowed to become too dry at the roots; and Heaths should be looked over at least every other day, not necessarily to water them but to supply it when needed, for though their requirements are now at the lowest yet the roots are never quite at rest. Admit air freely whenever the weather is mild, but avoid admitting it by the side lights during frosty weather, giving a little by the roof lights in preference. Cape and New Holland plants should have no more water than to maintain the foliage in good condition, but such plants as are advanced for flowering will require copious supplies, notably Epacrises and Acacias.

Pelargoniums.—The temperature should be kept at 40° and 45° by day, with ventilation whenever the weather is favourable, affording water very sparingly until the growth is more free, as when kept very moist the plants form coarse rank growth without a corresponding amount of roots. A portion of the plants may be stopped by pinching out the points of the shoots so as to form a succession by flowering later than the unstopped plants. Zonal Pelargoniums intended for summer flowering should be potted-on, being mindful of two things—viz., not to give them too much pot room, and to pot firmly. Stop the shoots as required to induce a well-furnished sturdy habit, not allowing them to flower at this season, and tying the branches well out when fine specimens are required. These plants are very useful, and are taking the place of the show varieties, which is a great mistake, both being equally valuable. Cinerarias throwing up for flowering should be assisted with weak liquid manure. Pot-on any late plants that require it; also Calceolarias, using turfy loam with a fourth of leaf soil or thoroughly decayed manure. Primulas keep well up to the light, and if the temperature range from 45° to 50° the trusses will rise well above the foliage, feeding the plants with liquid manure. Cyclamens also should be kept near the glass, and are deserving of every encouragement. Kalosanthes come in at a time when flowers are scarce in this structure, and are therefore useful, the flowers being durable. They require plenty of light, with water only to keep them growing. Fuchsias that are stowed away must not be allowed to become too dry, causing the wood to shrivel, as in that case the shoots die back, or if not they do not start well; afford sufficient water therefore to keep the wood sound. Tuberous Begonias must not be allowed to become dust dry, or they will not start into growth when wanted; afford them a little water to keep the soil damp. Liliums should have sufficient water to keep the soil moderately moist by watering as required around the inside of the pot, and not immediately over the bulbs.

ORCHIDS.

Plants of Calanthe vestita which have ceased flowering should be kept dry until again starting into growth. Dendrobiums showing flower should have moderate supplies of water at the roots, and an increase of heat and light for their encouragement. Oncidiums and Odontoglossums will be coming into flower, and should be well supplied with water. The terrestrial Calanthes should have plentiful supplies of water, also Cypripediums. East Indian Orchids that have no bulbs should have the moss kept damp, going over them every morning. Be careful not to excite Dendrobiums other than those showing flowers, but the growths must not be allowed to shrivel, the same remarks applying to Cattleyas. The temperature of the East India house should be 60° at night, 65° to 70° by day; Mexican house 55° at night, 60° by day; Odontoglossum house 45° at night, 55° by day, a few degrees deviation causing no injury.

FLOWER GARDEN.

Seeds of subtropical plants, such as Cannas, Eucalyptuses, Ferdinandias, Wigandias, Solanums, &c., should be sown and placed in brisk moist heat at once, so as to afford time to obtain strong plants before planting out. Any old plants that have been retained for propagation should be pruned and plunged in bottom heat to induce them to throw side shoots for cuttings. Aralia Sieboldi is best obtained by seed, but A. papyrifera increases readily from the root, the large fleshy portions being cut into lengths of 2 to 3 inches, placed in pots or pans in sandy loam, and plunged in strong bottom heat, where they soon break and form good plants. If the stock of succulents is likely to be short, leaves of Echeverias, Cotyledons, Kleinia repens, Pachyphiton bracteosum, &c., inserted at once in sandy soil surfaced with sand soon root in dry heat, or seed sown now will produce nice plants by bedding time, growing them on in gentle heat. Alternantheras, Coleus, and Iresines require a temperature of 60° to 65° by artificial means, and will then give a quantity of cuttings. Alternantheras being required in quantity, boxes of about 2 feet in length, 15 inches in width, and 4 to 5 inches in depth, are admirable for propagation, filling them to a depth of 3 inches with a compost of loam, peat, and leaf soil in equal parts, making it firm, and inserting the cuttings closely, but allowing a little space for growth, and placing over each box a square of glass. The cuttings root in from a week to ten days, the boxes being placed over the hot-water pipes of vineries or other houses. If the stock be short of the Bronze, Tricolor, or gold-leaved section of Pelargoniums an increase of warmth will be necessary to start the plants into growth to afford a supply of cuttings, which if struck early make useful plants for margins, &c. Stock plants of Ageratums, Lobelias, Verbenas, and plants of that nature should now be placed in moist heat so as to afford a supply of cuttings. Any beds or borders unoccupied with shrubs or spring-flowering plants ought to be dug or trenched at once. Pansies, Violas, Calceolarias, &c., which suffer from drought should have the ground trenched 2 feet deep and have manure placed well below the surface. Trenching will suffice for such plants as Pelargoniums, Tropæolums, &c., without any manure, but subtropical plants can hardly have the soil made too rich and deep.

TRADE CATALOGUES RECEIVED.

Charles Turner, Royal Nurseries, Slough.—*Catalogue of Vegetable, Flower, and Farm Seeds.*

William Bull, King's Road, Chelsea.—*Retail List of Flower, Vegetable, and Agricultural Seeds.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds, Implements, &c.*

Hooper & Co., Covent Garden, London.—*Spring Catalogue of Seeds and Plants.*

William Rumsey, Joyning's Nursery, Waltham Cross, London, N.—*Catalogue of Garden, Flower, and Farm Seeds.*

Thomas Bunyard & Sons, Maidstone.—*Descriptive Catalogue of Vegetable, Flower, and Agricultural Seeds.*

John Laing & Co., Forest Hill, London, S.E.—*Catalogue of Vegetable, Flower, and Farm Seeds.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (*W. W. B.*).—We do not know of any book specially devoted to the culture of the Carnation. Hogg's work is long ago out of print. You will find ample instructions on the subject in "Florists' Flowers for the Many," published at this office, and which you can have free by post for five postage stamps. (*Thomas Lambert*).—Hole's "Book About Roses," published by Blackwood. (*T. F. R.*).—The "Garden Manual," published at this office, will suit you. Send 1s. 9d. in postage stamps and it will be forwarded to you.

VINES BREAKING IRREGULARLY (*H. B., Sussex*).—It is impossible to advise you in a satisfactory manner unless you afford us some information respecting your Vines. If you will let us know their approximate age, varieties, if they produce healthy foliage, also if spurs are regularly placed on the rods, and the period that you usually start them, we shall then be glad to give your letter our best attention.

TEA ROSES FOR WINTER (*Foreman*).—The varieties of Tea Roses grown by Mr. Denning for producing blooms in winter are Niphetos, Isabella Sprunt, Safrano, Madame Falcot, Devoniensis, and Rubens. In addition to those varieties Mr. Hunter grows Vicomtesse de Cazes and Duchess of Edinburgh, and he has cut hundreds of blooms from them during the winter. The Roses are planted in a trough in a Pine stove.

INTRODUCTION OF THE ORANGE (*J. Forbes*).—Aubrey in his "History of Surrey," says that Sir Walter Raleigh brought the seeds and gave them to Sir Francis Carew, whose niece he had married. He raised trees from them and built an orangery for their shelter. In 1690 many of the trees were 13 feet high, and in that year ten thousand Oranges were gathered from them. The trees were killed by a very severe frost in 1739.

CORNISH FERN (*M. Anthony*).—It is probably a seedling variety of Adiantum Capillus-Veneris. The frond sent is very elegant, and much resembles Adiantum Farleyense, but has more deeply cut pinnæ. We have seen many seedlings of Adiantum Capillus-Veneris with fronds in their early stages quite unlike those of the parent plant, but in the course of a year or two they produced fronds of the normal type. This change of character is common to other Ferns; for instance, the elegant Adiantum gracillimum never produces its true gauze-like fronds until the seedlings are two years old, the first fronds always being abnormally large. The value of your Fern depends on its power of producing fronds with large and deeply-cut pinnæ when the plant has been grown to a large size. Its true character cannot be determined until the plant is at least three years old.

GRUBS INFESTING STRAWBERRY PLANTS (*D. Lindsay*).—Owing to the weather the specimens were too shrivelled for certain identification; seemingly they are larvæ of a beetle of the genus Elater (wireworms). Whatever be the species, no application to the soil can be devised better than an alkaline solution, say of ammonia, of such strength as not to injure the plants. As the larvæ sometimes quit the earth at night, it has been recommended to trap them by placing as baits lettuce leaves or slices of potato. If you cannot obtain gas ammoniacal liquor, one pint to two gallons of water, try a solution of paraffin, mixing a wine-glassful of paraffin in four gallons of water. This can only be done effectually with the syringe, alternately syringing into the vessel and into a few of the Strawberry pots, say about half a dozen, by way of experiment, and let us know the results.

REPOTTING FERNS (*Amateur*).—The Ferns should be repotted in March, or before they commence growing. The sides of the ball should be loosened, removing the old soil from among the roots, reducing the ball about a third. If the same pots are employed, to which there is no objection, they should be washed clean both inside and outside, and be drained efficiently. In potting press the soil firmly around the ball. Fibrous peat with a sixth of silver sand is a suitable soil for most kinds of Ferns. Water the plants carefully, but keeping them moist for a time after potting, and when they are starting freely into growth apply water copiously.

ROUGH MELONS (*Bangor*).—By "rough netted" we presume you mean rough, carbuncled, slightly netted, and deeply ribbed, "flavour and colour" being no consideration; you cannot have two with coarser aspect than Black Rock and Paterson's Hybrid, both of large size and scarlet flesh.

FORCING RHODODENDRONS (*A Lady*).—Remove them to a cool house at once, and introduce them to heat about six weeks before required in flower; but you do not say what the temperature they are to be introduced to is, and that entirely determines the time of their coming into flower. A temperature of 55° to 60° at night, 60° to 65° by day by artificial means, will be necessary, with an advance from sun heat. If the temperature is lower than that named, of course a longer time must elapse before the shrubs flower.

ANNUALS FOR EDGINGS (*Idem*).—None of the annuals you name are suitable for edgings to beds except Saponaria. Flowering annuals are either too tall-growing or do not continue long enough in bloom to be employed in a satisfactory manner as edgings to beds of continuous-flowering plants, the annuals either flowering too early, too late, or are of too short duration.

HEATING A GREENHOUSE (*W. C. B.*).—For heating small greenhouses nothing is cheaper or answers better than a stove boiler with hot-water pipes attached. The house might be heated with paraffin lamps, but the boiler in the end will be both cheaper and safer. We advise a stove boiler with hot-water pipes, a flow and return pipe 4-inch along the front of the house, which will afford all the heat required, and of a nature superior to that had from highly heated surfaces.

DWARF PEAS (*R. D., Chester*).—The dwarf kinds of Peas may be grown without sticks, but are the most profitable with. Extra Early Premier Gem, Blue Peter, Unique, Dwarf Waterloo Branching, and Sutton's Long-podded Tom Thumb are desirable dwarf varieties that may be sown in rows 2½ feet apart. They, however, are not so profitable as taller kinds when supported by sticks. A good yellow-flowering annual bedding plant is Tagetes signata pumila.

APPLES (*J. Woolrych*).—We have two Apples in a small box, but as no letter accompanied them we did not know from whom they came, or the object with which they were sent.

HELLEBORES (*J. Duckworth*).—They may be obtained of the principal London and provincial nurserymen, especially those making herbaceous plants a specialty. We cannot recommend dealers.

PEARS AND APPLES FOR EXPOSED SITUATION (*Idem*).—*Pears:* *Jargonelle, *Williams' Bon Chrêtien, Flemish Beauty, *White Doyenné, *Comte de Lamy, Durondeau, Marie Louise, *Beurré Diel, *Thompson's, Passe Colmar, Beurré Bachelier, and Bergamot Esperen. *Apples—Dessert:* Irish Peach, King of the Pippins, Cox's Orange Pippin, Margil, Reinette du Canada, and Duke of Devonshire. *Kitchen:* Keswick Codlin, Lord Suffield, Stirling Castle, Cox's Pomona, Cellini, Rymer, Blenheim Orange, Northern Greening, Warner's King, Norfolk Bearer, Dumelow's Seedling, and Hambledon Deux Ans. The Pears marked with an asterisk are most desirable.

SOLANUMS UNHEALTHY (*J. R.*).—Your plants are infested with scale, which if not destroyed or the plants removed will spread on to such plants as Camellias and others that are liable to the attacks of this insect. Sponging the leaves, especially on the under sides, with a solution of soft soap, is a safe though somewhat tedious remedy.

HOT-WATER PIPES CRACKED (*J. C. F.*).—By emptying the pipes so as to have them dry, and filling the cracks with a salve formed by mixing iron borings or filings with vinegar or sal ammoniac, pressing this into the fissures and keeping the pipes dry until this has become quite hard, it will stop the leakage and stand for a length of time. Sal ammoniac alone will not stop the leakage. We have known some rope yarn coated with white lead forced into the crack stop the leakage until such time as the pipes could be emptied of water for application of the former remedy.

VINES IN POTS NOT STARTING (*Pot Vine*).—We can only account for the Vines not starting in two ways—viz., either they did not ripen their wood until late, and have not been kept cool sufficiently long to induce rest, or the sap that would otherwise be expended upon the eyes is lost by the Vines bleeding. Are the roots all right?

ASPARAGUS (*A. B.*).—We do not consider Connover's Asparagus different from the variety usually cultivated. Any difference is the presumed separate varieties we believe to be attributable to soil and cultivation.

NAMES OF PLANTS (*C. H. O.*).—Cattleya guttata. (*B. J.*).—Picea cephalonica. (*B. A. H.*).—Philipodendron regia.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

MANAGEMENT OF A BREEDING FLOCK OF DOWN SHEEP.

UNDER the heading of down sheep we propose to include the Southdown, the Hampshire Down, and west-country Down. The Southdowns are kept principally on the chalk hill districts in the county of Sussex, the Hampshire Downs extend over a large portion of Hampshire and Berkshire, and the west-country Downs are reared chiefly in Wiltshire and Dorsetshire. The breeding flocks are kept as the stock flocks upon the chalk hill farms throughout those five counties. In all these districts it will be found there are home farms attached to the estates of noblemen and gentlemen, upon which one or other of these varieties of sheep is kept, and we know many proprietors who take great interest in their breeding flocks, and some of them are exhibitors of their best specimens at the different cattle shows of the leading agricultural societies. During the past twenty years such improvements have been made in the value and character of the respective breeds that it is doubtful whether they have not in many instances attained to perfection, or as near to it as it is possible to reach. As we have for many years given strict attention to these matters we are obliged to add that all the intelligence and care that can be bestowed will scarcely suffice to enable the owners of the best flocks to maintain them in all their purity and high character for which they have recently been celebrated. We have therefore undertaken, by relating our experience as well as that which we have gleaned from our connection and acquaintance with the best flock masters and their sheep connected with the hill farming of the several counties, to lay before our readers in a practical form such methods of management as will enable young beginners in the business to succeed

and follow in the footsteps of the many successful managers of home farms who have preceded them.

In commencing a breeding flock we recommend that the soil and climate must be a great guide in selecting the variety of sheep to be kept as a stock or breeding flock, and, taking the facts as we find them—that the animals kept in certain districts by the most intelligent and experienced managers as representing the result of their observations and profits in business—we should in the first place select our stock from the flocks in the district or neighbourhood of the farm whereon we intend to practise the art of breeding and rearing a flock of really first-class down sheep. Having on various occasions purchased ewes for the foundation of a flock, we recommend that if the farm we intended stocking were on the Sussex hills, we should buy our sheep at the first Lewes fair. If in Wiltshire or Dorset we should purchase at Butford or Wilton fairs, near Salisbury; and if in Hampshire or Berkshire we should obtain our ewes from Overton or Weyhill fairs. By making purchases at the earliest fairs we have invariably found that the best stock as a rule is sold at these fairs. As it is, however, not always possible to obtain ewes of the several ages required for the stock on a farm, we have usually taken a double number of six-teeth and full-mouthed ewes, as these are always to be had in any quantity, and then trust to our success in breeding to save a larger number of ewe lambs of the first year's produce, except that we should be fortunate enough to obtain the offer of a flock of two-teeth and four-teeth ewes, or obtain them at a sale in the neighbourhood where a well-bred flock may be dispersed and sold through a change of tenancy upon the farm where they may have been reared.

In stocking a farm as to numbers it will depend in a great measure upon the capability of the farm as to its produce, and this will be estimated by the proportion of vale arable, light land arable, water meadow, vale pasture, and down land upon the hills. The sheep required as to numbers must be arranged in accordance with the fertility of the land, and not according to the strict rules of cultivation laid down by a lease, for we are now speaking of the conducting of home farms where there are no restrictions of cropping, except those which are most judicious as a rotation, in furnishing ample supplies of food for stock at all seasons of the year. The actual number of sheep to be kept upon a farm of a fair proportion of land of the classes above named must be a matter for consideration. We will for example instance a farm of six hundred acres, and we often find the land on such a farm to consist of—

	Acres.		Acres.
Vale land arable	100	Total arable	400
Light land arable	300		
Down land pasture	150	Total pasture, &c.	200
Water meadow	30		
Vale pasture, including house, homestead, &c.	20		
Total of farm			600

This being a fair illustration of the extent and contents of a breeding stock farm in either of the above-named counties, although of course the farms differ in extent and in proportion of arable to pasture and meadow land. Some farms have no irrigated meadows at all; still to make the statement intelligible which we wish to lay before our readers we have adopted this illustration of a farm of six hundred acres, and after stating the management we recommend for such a farm it will assist to some extent the managers of farms, although differing in their size and contents. The number of stock ewes which we may venture to maintain upon these six hundred acres would differ in some respects as to the size and sort of stock, because we allow one and a quarter ewe per acre to the arable land of the Hants and west-country sheep, still the Sussex sheep are smaller, and may be run thicker and in greater numbers, say one and a half ewe per acre; but both these proportions must be taken as applying only to such a farm as our illustration affords, because where there is a less proportion of down or water meadow this will alter the capability of the farm to maintain any given number of sheep.

Let us now consider the method whereby the flocks of sheep are to be maintained numerically of the respective ages. A flock generally consists of about one-third two-teeth ewes, one-third four-teeth, and one-third six-teeth ewes, and the ewe lambs of the previous year. There are, however, various opinions as to the policy of keeping one-fourth of the respective ages in lieu of one-third. We incline to the former proposal of one-third, and the numbers of the relative ages are kept up by the sale of the full-mouthed ewes in the months of July or August, which are replaced by the ewe lambs of the preceding year. The wether lambs, which generally reach to about half the number of the total yeaned, will be fattened or sold as stock about the same time as the off-going ewes; there should also be sold a portion of the ewe lambs, all the unhealthy or otherwise objectionable animals, which should be replaced by purchases made of good stock, and judiciously selected as matching the bulk of the flock, and thus start with a full number of ewe lambs in the autumn of each year. It may be interesting to our readers to find that statistical information as to the per-centage of lambs reared from ten thousand ewes of the Hampshire Down breed is about 90 per cent. We have, however, the exact information, which gives it at 89 per cent. in a district included within a ten-mile radius of a certain town, the result of a census taken by the members of a club upon the 4th of May during five consecutive seasons.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—As soon as mild and open weather recurs the work of fallow ploughing may be resumed upon all dry soils in those cases where it was unfinished at the commencement of the severe frosts. All kinds of cartage, too, may be continued, except that it is important clovers or pasture land should not be carted over immediately after a thaw. Where the building of cottages or alterations and additions to farm buildings are intended, the work may be forwarded very much, now the horses are comparatively at leisure, by the cartage of materials such as stones, bricks, tiles, &c., to the place where they will be required for use. This will set the horses at liberty for work on the home farm when the busy period of seed time arrives in the spring. The horses may also when at liberty, where chalk is available within a few miles, be employed in fetching it for various purposes, and placing it in heap in such fields where it may be required and laid out when the land is dry enough to bear the carts without injury. A quantity of chalk when laid out in the spring, after the period when frosts are not likely to occur of sufficient severity to shake and separate it, should be broken fine enough to bury easily under the furrow in the act of ploughing. Any lumps or large unbroken pieces which may be brought to the surface during the tillage should not be left during the summer subject to the action of the sun and wind, as they often become almost as hard as stone, and the beneficial action of the chalk instead of being immediate is delayed, and the object is deferred of preventing clubbed roots in turnips, cabbages, &c., for the action of both chalk and lime is now well defined as calculated to neutralise any injurious acids found in the soil, which not only prejudices the growth of roots but greatly accelerates the growth of certain weeds. The first opportunity should now be taken for ploughing saintfoin or clover lea ground, and pressing upon fields intended for oats or drege corn, in order that the turf may decay and furnish manure for the crop, at the same time it gives land a chance of settling down firm, so desirable in checking the ravages of the wireworm. With respect to the cultivation for beans and peas, the ploughing may be deferred with advantage until the time arrives for planting or drilling; for instead of a stale furrow for pulse crops we prefer that the land should be ploughed and seeded at the same time, and if possible and convenient on the same day, for we have often seen that the headlands or a portion of a field which had been recently ploughed, yielded a far better produce than the portion which had been early ploughed.

Hand Labour will now consist of hedging, ditching, and drowning-in the water meadows—that is, cutting out the leading and branch water carriers, and making out the drawing trenches; the latter being essential to the carrying off the water as quickly as possible after the advantage of flooding has been obtained. For the purpose of shaving off the sides of these trenches a tool is used with a long handle something like a hay knife, and also somewhat like a spade. This implement greatly facilitates the work, one man cutting the edges off the turf, another following with a steel prong to remove and place the parings where most required in the adjoining beds. The work attending the threshing of corn will still require hand labour; and at this time of year, when hand labour is to be easily obtained, the winnowing of drege corn, which entails some extra labour when the object is to divide or separate the barley from the oats, will pay well for the doing. The plan is to pass the drege or mixed corn twice through the barley hummelling machine, which will break off and remove the beards or awns of the oats and barley, then pass the whole through the winnowing machine to take out the broken awns. The corn will then be in good condition to pass through the screen, which should be set so that the oats will pass through, leaving the barley a separate sample; but some care is required, for if too much corn is put into the screen at one time it cannot operate as required. There is also much difference in the working of the screen. The rotatory action of Coleman & Morton's implement is the best we have seen, and samples of drege have been so completely separated by it that the barley has been sold at the best price for malting purposes. We have on a former occasion alluded to this matter, but we deem it of sufficient importance to again call attention to it, as the samples of barley have for some years proved very thin in many districts after turnips fed off by sheep, and that drege corn gives a much better crop than barley alone, added to which as a rule barley when grown with oats produces a plump sample. We can also recommend with confidence the same method of winnowing for barley only in all those cases where a large or considerable portion of the sample is thin, for if sold as it is it will fetch a poor price, whereas malting barley should be separated from the light and grinding quality, because for the latter we can always find a use

upon the home farm; when, however, it is sold separately, the malting sample often makes double the price of the grinding corn.

MORTALITY AMONGST SHEEP.

We learn that there is a considerable number of deaths amongst store sheep in different parts of the country. Rot is very prevalent; but there appears also to be a diseased condition of the animal in which the flesh wastes away without any apparent cause. This is particularly the case in those parts of the country where no special attention is given to sheep at this season beyond giving them the run of the pastures.

It is now a recognised fact that store sheep are better able to stand the winter when they get a meal of dry concentrated food. It is not desirable, certainly, that breeding ewes should become fat, but they may be kept in a healthy state by the aid of artificial food without running into over-high condition. In our last issue we recommended a correspondent who asked our advice to give his breeding ewes, from this time forward, a daily ration for each ewe of 1 lb. of bran and ¾ lb. of crushed oats, mixed with 2½ lbs. of straw chaff. The following mixture of the different kinds of food is given in "The Live Stock of the Farm," on the authority of a Yorkshire farmer who has used it with great advantage—viz., 1½ ton of linseed cake crushed, 1½ ton crushed oats, 1 ton of bean meal, 1 ton of locust bean meal, 1 ton of malt comb, 8 bushels of ground malt, and 1½ cwt. common salt. These materials must be thoroughly mixed together, and the whole forms a sufficient quantity to serve two hundred ewes during the winter season. Other kinds of store sheep will also be benefited by it. Starving ewes during winter has the effect of rendering the lambing season very unsatisfactory—a result, however, which many are inclined to attribute to "bad luck" rather than to the true cause. Where turnips can be spared, a cartload for each hundred ewes may be spread daily on a grass field, but the dry food should also be given.—(*Irish Farmers' Gazette.*)

THE MODERN DORKING.

We promised last week, after giving a general survey of the poultry fancy in 1878, to return in other numbers to the special features noticeable in the progress of different breeds. Dorkings are *par excellance* our English fowl; they head the list of almost every poultry show, they cannot be surpassed as table poultry, and are probably kept to a larger extent in the country, in a greater or less degree of purity, than any other breed. Any alteration therefore in their characteristics, or in the points which their admirers breed for, are worthy of consideration. We have for some time regretted to see a change, as we think for the worse, in the form of the most successful birds. Long legs were once almost a disqualification in the show pen; now, to judge by the awards at some of our great shows, they seem almost an advantage. We specially allude here to the Dark variety, for fortunately in the Silver-Grey, White, and Cuckoo breeds there does not seem to have been a like change. At the last Crystal Palace Show we were astonished at the style of some of the prize adult cocks. Old Dorking fanciers were heard to ask of what breed they were. The owner of one of them, a thorough fancier and one of the best judges of the breed, was the first to deprecate in a contemporary this change; and he explains that he finds it necessary to exhibit such birds, much as he dislikes them, to suit the taste of the judges. The birds certainly have enormous bones and so are very heavy, but mere weight is not the sole desideratum in a table fowl. A good table fowl should have the maximum of meat on the parts which are delicate, and should also have the least proportion of bone to flesh. Long-legged birds are nearly always hollow and deficient in breast, and so are the very opposite of the ideal table fowls. It is common now for a vendor who wishes to recommend his saleable Dorkings to describe them as having plenty of bone, whereas formerly a fancier would have required, as every good poulterer would still, small bones. How has this change arisen? We believe from two causes. Firstly, cross-breeding; and secondly, selection: both on erroneous principles.

Firstly, it is an acknowledged fact that about ten years ago in some famous yards the Grey Dorking, as it was then called, was crossed with large dark Asiatic birds, probably nearly related to Malays. This cross perhaps brought one advantage to the breed—greater hardiness; it certainly brought many disadvantages, among them greater legginess, want of breast, and a tendency to dark feet. We are constantly asked why it is that in the best strains dark feet have appeared of late, and in some one chicken in five, or nearly so, is black. We believe this all to be due to these unfortunate crosses. For a few generations they produced great size, which astonished all beholders in the show pen, and forthwith everyone sought "fresh blood to improve the breed" from these impure stocks. It was disseminated over the country, and nearly all the strains of exhibition Dark Dorkings, as their owners now know to their vexation, were spoilt by it.

Secondly, selection on false principles has done something to bring about the change. From a desire to produce weight and greater appearance of size birds have been selected for breeding with large bones. This is a mistake. We have learnt that large bones are generally weak bones, and now never look forward to chickens which show legs of abnormal size at an early stage as likely to be good for much. However, ours has not been the general opinion, and hence the gawky figures that have become common and of late have found favour with the judges. For our own part we breed prize poultry because they are useful or ornamental, and a constant source of satisfaction to look at. We would rather be beaten with an old-fashioned, short-legged, round-breasted Dorking than win with a Malay-like creature. The apparent size which its legs give to such a bird is not real; handling will reveal that there is more substance in a short-legged bird which looks far less in size. The old-fashioned bird is not extinct, though in a fair way to become so. We do trust that Dorking fanciers will set their faces against these innovations in the type of bird bred for, and be content with the size which much careful breeding has given us, and the form long recognised as the true one, and for which so much may theoretically be said. There is one strong inducement to them to do so—viz., the ever-increasing difficulty of breeding birds with really white feet and properly placed spurs. There can be little doubt, we think, but that the dark feet are, as we have said, traceable to these foreign crosses. How then (it may be asked) have they got into the Silver-Grey breed? Through crosses again, we reply. Silver-Greys were some years ago much crossed with the darker breed for the sake of size, and the lightest produce selected. We know that from one yard into which Asiatic blood was introduced for the "improvement" of the Dark strain, cockerels were year after year shown as Silver-Greys at Birmingham, which were merely the lightest coloured birds from a motley lot: the unwary bought them to the great detriment of their stock. We have found a tendency to dark feet in those families of Silver-Greys which produce hens with deep robin breasts. For this reason we are not advocates for very dark breasts in Silver hens, especially as such never produce cocks of the desired colour.

Again, we believe that a mistaken selection of birds for breeding stocks has had much to do with the trouble now so constantly complained of as to the misplacing of spurs and toes. Large bones are generally, as we have said, weak bones, and from leg-weakness result twisted sinews, and from them misplaced spurs. Greater size was doubtless at one time much required in the breed, but we now have size; and do not let us, in the vain endeavour to reach a still further point in that direction, sacrifice points which are at least of equal value—symmetry, compactness, and muscular strength. There are still scattered about in many a farmyard well-shaped birds, the remnants of strains once famous before this change in fancy, and before Asiatic blood was introduced. We much improved our own stock by the introduction of some such birds, and would advise those who wish to preserve the old English form of Dorking to do the same.—C.

JERSEY POULTRY SHOW.

This annual Show was held in the Victoria Rooms, St. Helier's, on the 8th and 9th inst. The poultry were shown in an immense room well lighted, and were nowhere in more than two tiers, so that all could be well seen. They numbered about 350 pens, and many of the classes were such as can be seen at few of the English shows. A few pens came from Guernsey, and one English exhibitor sent a few. All the rest were from the island, and a very good lot they were.

Dorkings came first, but were not very remarkable. In cocks Darks were first and second, and a Silver-Grey third. In hens all the winners were Darks. *Spanish* were extraordinarily good. Nine cocks and fifteen hens were shown, and there was not a bad bird among them. A sectional cup went to the first cock, a magnificent bird, which took first at the Paris Exhibition. In both classes there was little to choose between the winners, which all came from one exhibitor. *Andalusians* and *Minorcas* were not remarkable. The latter variety seems to be popular in the island, and we hear that much finer specimens are to be seen there than were shown. The taste in Andalusians seems there to be in favour of cocks with very light hackles; we are assured that these are descended from an old stock in the island, and that light hackles have always been looked upon as signs of purity. Fanciers of the breed ought really to consider this question, for if it really be so harm is likely to be done to the breed by crossing with Spanish to obtain the dark hackles now thought essential in an English show pen. *Cochins* were one of the great features of the Show. There were seventeen cocks and no less than thirty-four hens. First and cup went to a magnificent Buff cock, bright and even in colouring and densely fluffed. Second was a white—very white—bird, in spite of his travels from England. Third a noble dark Buff cockerel, as fine in shape as we ever saw; some slight damage to a peak of his comb a little marred his looks. The hens were a puzzle to the Judge, so many good Buffs were shown by Capt. Robin. First was undoubtedly the finest, second a good English White, and third another noble Buff. *Brahmas* were poor as a whole. The cup Light cockerel will be a good bird when

furnished. The first Dark cockerel was good in colour, and the first Dark hen in size. *French* were not so numerous as we expected to see them, but some of the winners super-excellent. The Houdan cocks were only up to a fair average. The first hen was very good. About the most remarkable bird in the Show was the first-and-cup La Flèche cock; he is one of the finest specimens of the breed we ever saw, and in fine condition though very old. Second went to a short-legged, round-breasted Crève cock. In hens first again went to a La Flèche, a very weighty bird. Second and very highly commended to immense Crèves. *Polish* and *Sultans* were fair, the first and second Golden Polish cocks and the first Sultan hen being the best of the lot. *Hamburghs* were not as a whole very good. Of the four varieties Silver-pencilled were the best and most numerous; the cup went to a lovely little pullet of this breed. A very stylish Black cock arrived too late for competition. *Game* were disappointing after some of the classes. First in both classes were good Brown Reds, the cock in splendid bloom. *Malays* were simply wonderful; we never saw such classes — sixteen cocks and twenty-three hens, almost every one of them worthy of notice. First and cup (against Game) went to a gigantic Dark cock. Special pens should be made for such birds, they could not stand upright in ordinary ones. We believe this bird obtained a like honour at the Crystal Palace. Second was a grand Coloured cockerel, and third a White cock. In the long row of hens the first stood prominently before the rest, a light Cinnamon bird; second a White, and third another Cinnamon. Many were noticed in this class. The cup for the exhibitor who made the greatest number of points in any one breed went to Mr. Downing, the owner of all the prize Malays. *Any other variety* were small classes. First and cup (against Polands) went to a White Leghorn cock, not large, but faultless in colour and in beautiful plumage. Second to a pretty Silky cock. First in hens to a very good Silky. *Bantams.*—Game Bantams were good, others fair and few. The cup for the best bird was given at first to a Pile hen, but her owner not being a member of the Society was not eligible to compete, and so it was passed on to the first Golden Sebright hen.

Waterfowl did not show in great numbers or excellence. The first Rouen Duck and a pen of Pekins which won were the best.

Turkeys.—A fine pair of Americans would have been first, but unfortunately when the Judge got to them the cock had just trampled the hen to death. A curious pair of brown Turkeys were very highly commended. Some Silver Pheasants in exquisite plumage were a great attraction.

Pigeons were by no means so good as the poultry. The fanciers of the island might well make some exchange with English fanciers of some of their good poultry for really good Pigeons. Antwerps and Barbs were very fair. The best class was that for Owls or Turbits. First and third went to capital little White Africans, and second to an English Blue, all belonging to Mr. G. H. Billet, who won in the class the cup for the exhibitor obtaining the greatest number of points in any one class. A fair White Pouter and a nice Black Magpie won in the Variety class.

A pretty show of *Cage Birds* was held with the Pigeon Show in a room adjoining the poultry hall, capitally warmed and well lighted. The Canaries were very fair, and one or two good Goldfinch Mules won; but the great objects of attraction were the classes for foreign birds. In the first were three good Parrots, and in the second such a collection as is seldom seen. Many inhabitants of the island are of course seafaring men, and hence these beautiful importations of birds from many climes. First and silver spoon for the best cage bird went deservedly to one of a splendid pair of rose-crested Cockatoos. We have never seen such a pair elsewhere, in perfect plumage and condition. It is a pity that they cannot be seen at some of our great English exhibitions. Second was a Blue Mountain Lory, and third a crimson-headed Rosella, of which breed there were no less than four good specimens in the class. A grand lemon-crested Cockatoo was very highly commended, and must have won in any ordinary show.

The whole arrangement of the Show seemed admirably carried out. The public were not admitted till the judging was all finished, and the Committee seemed all active and on the spot. The visitors unfortunately were few, from the exceptional severity of the weather. The Poultry and Pigeons were shown in the pens of Mr. Billet of Southampton.

POULTRY.—DORKINGS.—*Cock or Cockerel.*—1 and 2, T. Blake. 3, A. Gallichan. *Hen or Pullet.*—1, A. Gallichan. 2, T. Blake. 3, Rev. R. S. S. Woodgate. SPANISH.—*Cock or Cockerel.*—Cup, 2, 3, and *vhc*, P. F. Le Sueur. *Hen or Pullet.*—1, 2, 3, and *vhc*, P. F. Le Sueur. ANDALUSIANS AND MINORCAS.—*Cock or Cockerel.*—1, J. Cabot. 2, J. Gallie. *Hen or Pullet.*—1 and 3, R. B. Colley. COCHINS.—*Cock or Cockerel.*—Cup and 3, Capt. T. S. Robin. 2, Rev. R. S. S. Woodgate. *Hen or Pullet.*—1 and 3, Capt. T. S. Robin. 2, Rev. R. S. S. Woodgate. *vhc*, H. S. S. Young. BRAHMAS.—*Light.*—*Cock or Cockerel.*—1 and Cup, A. Gallichan. 2, M. De Ste.-Croix. *Hen or Pullet.*—2, A. Gallichan. 3, M. De Ste.-Croix. *Dark.*—*Cock or Cockerel.*—1, C. Nicolle. *Hen or Pullet.*—1, A. Gallichan. 2, Col. Howell. FRENCH.—*Houdans.*—*Cock or Cockerel.*—1, G. De Faye. 2, Capt. T. S. Robin. *Hen or Pullet.*—1, G. De Faye. 3, C. F. Gideaux. *Any other variety.*—*Cock or Cockerel.*—1, Cup, and 2, G. De Faye. *vhc*, P. F. Le Sueur. *Hen or Pullet.*—1, G. De Faye. 2 and *vhc*, P. F. Le Sueur. POLISH AND SULTANS.—*Cock or Cockerel.*—1, J. Pluck. 2, A. Gallichan. *vhc*, W. J. Cudlipp. *Hen or Pullet.*—1, W. J. Cudlipp. 2, A. Gallichan. HAMBURGHS.—*Spangled.*—*Cock or Cockerel.*—1, J. A. Carré. 2, G. De Faye. *Hen or Pullet.*—2, G. De Faye. 3, J. Cabot. HAMBURGHS.—*Pencilled.*—*Cock or Cockerel.*—1 and 3, L. Vivier. 2, J. Pluck. *Hen or Pullet.*—Cup and 2, L. Vivier. 3, J. A. Carré. *Black.*—*Cock or Cockerel.*—1 and 2, E. L. Mourant. *Hen or Pullet.*—1 and 2, E. L. Mourant. GAME.—*Cock or Cockerel.*—1, J. Voisin. 2, J. Downing. *Hen or Pullet.*—1, J. Voisin. 2, — Jennings. MALAYS.—*Cock or Cockerel.*—Cup, 2, 3, and *vhc*, J. Downing. *Hen or Pullet.*—1, 2, 3, and *vhc*, J. Downing. ANY OTHER VARIETY.—*Cock or Cockerel.*—Cup, A. Gallicham. 2, Rev. R. S. S. Woodgate. *Hen or Pullet.*—1, Rev. R. S. S. Woodgate. 2, P. Renouf. SELLING CLASSES.—*Cock or Cockerel.*—1 and *vhc*, F. Le Brocq. 2, 3, and 4, P. F. Le Sueur. *Hen or Pullet.*—1 and 4, F. Le Brocq. 2 and 3, P. F. Le Sueur. BANTAMS.—*Game, Black or other Reds.*—*Cock or Cockerel.*—1, J. Corbel. 2, G. H. Billet. 3, J. Pluck. *Hen or Pullet.*—1, C. Nicolle. 2, G. H. Billet. 3, J. Pluck. *Game, any other variety.*—*Cock or Cockerel.*—2, Col. W. Bell. 3, C. Nicolle. *Hen or Pullet.*—Cup, J. Corbel. 2, Col. W. Bell. 3, R. Robin. *Any other variety.*—*Cock or Cockerel.*—1, C. Nicolle. 3, C. Rondel. *Hen or Pullet.*—Cup and 2, C. Nicolle. GEESE.—1 and 2, P. Neel. DUCKS.—*Rouen or Aylesbury.*—*Drake.*—1 and *vhc*, P. F. Le Sueur. 2, W. Cudlipp. *Duck.*—1, W. Cudlipp. 2, P. F. Le Sueur. ANY OTHER VARIETY.—1, Rev. R. S. S. Woodgate. TURKEYS.—1, W. Pelliler. 2, R. Robin. *vhc*, P. Renouf. FANCY BIRDS.—1, P. Renouf.

PIGEONS.—CARRIERS.—1, A. B. Seymour. 2, J. Pluck. ANTWERPS.—*Short-faced.*—1, J. O. Leslie. 2 and 3, A. B. Seymour. *Long-faced.*—1, G. Osmont. 2 and 3, F. G. Bertram. FANTAILS.—1, 2, and 3, A. E. Seymour. BARBS AND TUMBLERS.—1, A. B. Seymour. 2, J. Pluck. JACOBINS AND TRUMPETERS.—2, A. B. Seymour. 3, J. Pluck. TURBITS AND OWLS.—1, 2, and 3, G. H. Billet. ANY OTHER VARIETY.—1 and 3, A. B. Seymour. 2, J. Pluck. SELLING CLASS.—3, A. B. Seymour.

CAGE BIRDS.—CANARIES.—*Clear Yellow or Buff.*—1 and 2, C. Nicolle. *Norwich.*—1 and 2, T. Le Breton. *Lizards.*—1, 2, and 3, G. De Faye. *Variegated.*—1, C. Nicolle. 2, A. Gaudin. *Any other variety.*—1 and 2, C. Nicolle. MULES.—1, P. F. Le Sueur. 2 and *vhc*, C. Nicolle. FINCHES AND LINNETS.—1 and 2, E. Lemprière. ANY VARIETY OF ENGLISH BIRD.—1 and 2, J. Cabot. PARROTS.—1, J. R. Ward. 2, G. De Faye. ANY OTHER VARIETY OF FOREIGN BIRDS. Cup and 3, J. G. Moss. 2, C. Nicolle. *vhc*, J. R. Ward.

JUDGE.—Mr. O. E. Cresswell, Bagshot, Surrey.

VARIETIES.

ONE of the novel features which it is proposed to introduce in the International Agricultural Exhibition is a comparative museum of ancient and modern farm implements, with a view of showing how great has been the advance made alike in the design and the workmanship of English agricultural machinery since the establishment of the Society forty years ago. In order to attain this object the Exhibition Committee are endeavouring to obtain the loan of such more or less primitive forms of implements as would illustrate the successive steps by which each class of machinery has been brought to its present pitch of perfection.

—— THE death is announced of Sir St. George Gore, Bart., formerly so well known as a fancier and exhibitor of poultry and Pigeons.

—— WE have before us the schedule of the Wellingborough Show, to be held on February 1st and 2nd. There are twenty-six classes for poultry, fourteen for Pigeons, eleven for Rabbits, and fifteen for cage birds.

—— WE also have the schedule of the Ryde Show, to be held on February 5th and 6th. The classification for both poultry and Pigeons is very good, there being thirty-one classes for the former and twenty-three for the latter, with three prizes in each class. There are point cups for both poultry and Pigeons, and Mr. H. M. Maynard gives cups for the best pen of poultry and the best pen of Pigeons.

—— THE late Mr. Edward Boards of Edmonton, an extensive farmer and market gardener, has bequeathed to the Royal Agricultural Benevolent Institution the munificent sum of £12,000 payable after the demise of his widow.

—— THE National Peristeronic Society's Show of Pigeons which opened at the Crystal Palace on the 14th inst., is both an extensive and excellent one, many birds of rare quality and of great value being exhibited. We have not received a list of the awards, and a more particular notice of this interesting gathering must be deferred to a future issue.

—— OF potatoes 493,888 cwts. were imported last year, whereas the year previously 1,285,693 cwts. were imported.

—— WE have received the balance sheet of the British Bee-keepers' Association, from which we gather that the Association is in a flourishing condition. The total receipts amount to £282 8*s.* 4½*d.*, and the expenditure to £183 0*s.* 9*d.*, leaving a balance in hand of £63 8*s.* 7½*d.* in cash and £36 1*s.* of assets.

—— IN some excellent notes on the use of lime in the *New York Tribune*, Professor Caldwell observes that lime, in the form of quicklime, is extensively used in all countries where agriculture is carried on in an intelligent manner, as an application to the soil, and the beneficial results of its use are unquestionable; these results are manifested in larger crops of grain, and grain of better quality, in better and sweeter herbage in the pastures, and often in more rapid maturing of the crops. The object gained by this use of lime cannot usually be to supply the plant with the lime that it needs for its own sustenance. The quantity used ranges all the way from 1500 to 12,000 lbs. to the acre, whilst the whole wheat crop requires only 10 lbs., and a clover crop, which makes about the heaviest demand, needs but 120 lbs. It is not to be denied that a soil will sometimes be found so poor in lime as to need some further addition to its stock than is given in the usual manuring, in order that the crops may find all that they need, but such is not often the case; and it is generally conceded by those who have given the subject the most careful study that lime, as it is ordinarily used in agriculture, produces its beneficial effects mostly by its action on other constituents of the food of

plants already in the soil, so altering their chemical relations as to make them assimilable in larger proportion.

—— SCOTCH EAGLES have, says the *Daily News*, been much affected by the late severe weather, and have migrated south, following their food. One of the under-keepers on the Somerleyton Hall estate lately captured, by a shot from a long distance, a very fine specimen of the Golden Eagle near the north end of Fritton lake. As the wing only was fractured this noble bird was, we are glad to say, not killed, and it is now preserved alive, the wing being healed. Another Eagle is still to be seen occasionally about the lake. The wildfowl which usually congregate there in large numbers are frightened at his appearance, and in consequence the decoys cannot work their curious-fashioned and ingenious apparatus for entrapping the Ducks when the Eagle is about.

—— ABOUT a year ago the *Prairie Farmer* contained a recipe for keeping eggs a long time. It was simply to pack them in a cool place, small end down, in kegs or boxes filled with finely powdered dried earth, or common road dust, or sifted coal ashes. These settled between the eggs, kept them from access to the air, and prevented evaporation of the white or spoiling the yolk. The experiment was tried, says our contemporary, last June, before the intensely hot weather that succeeded. On taking the eggs out of the packing a few days ago they were as fresh and clean-looking as if fresh laid. On testing them for the table they could not be told from fresh eggs. When these were put down eggs sold at 6 cents a dozen. They are now worth 18 cents, or an advance of 200 per cent. This ought to pay. The shell of an egg is very porous. Left exposed to the air it passes through the shell and soon spoils the contents. When placed in a pickle of lime and salt the eggs may be preserved, but at the expense of quality. They may also be oiled or varnished, or covered with glycerine or mucilage. These all answer the purpose more or less, but change the external appearance of the egg so much as to injure the sale. Eggs packed in dry dust, kept cool, and perfectly dry, are a complete success, and could not be distinguished from perfectly fresh eggs just laid.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

A BEE-KEEPERS' Association has been formed for Hertfordshire, of which Lord Verulam is President, and Rev. Herbert R. Peel is Honorary Secretary.

The object which the promoters of this Association have in view is to encourage amongst the residents in Hertfordshire, and especially amongst the cottagers and agricultural labourers, a more intelligent, humane, and profitable system of bee-keeping. The Herts Association is a branch of the British Bee-keepers' Association, which was established in 1874, and which holds annually a great metropolitan show of bees, hives, and honey. The show for the year 1878 was held in the gardens of the Royal Horticultural Society, under the Presidency of the Baroness Burdett-Coutts, on August 6th, 7th, and 8th.

The Herts Association, though anxious to encourage the adoption of the moveable-comb system, as giving the bee-master greater control over his bees and greater facilities for examining them, does not propose to recommend hives of any particular pattern, or to decide between the merits of the leading hive manufacturers. It would rather aim at the introduction into general use of supers made of wood or straw, as well as of the extractor or honey-slinger, as entirely superseding the old system of stifling bees with sulphur and destroying the comb in order to obtain the honey. The finest white comb filled with virgin honey can be obtained in supers in the months of July and August without that mtermixture of blackened brood and crushed pollen which is inseparable from the old method of "taking up" a hive; whilst pure run honey can be obtained at any time during the season by means of the extractor, and the combs returned to the bees to be refilled without their being broken or injured. The preservation of the combs lessens very materially the labours of the bees, and enables them to devote the precious days of summer exclusively to the storing of honey instead of consuming it in the preparatory toil of building fresh receptacles for their stores. Where new comb has to be built, the prepared wax sheets, obtainable from any of the leading hive manufacturers, will be found of great service. The improvement in the quality of the honey thus obtained may be regarded as a matter of great importance. The cottagers' honey from the straw skep is, from the manner in which it is taken, often almost unsaleable, and is driven out of the market by foreign honey.

During the summer of 1878 the promoters of the Association have given displays of driving, transferring, extracting honey, uniting stocks, &c., at the flower shows held at Latimer in the grounds of Lord Chesham; at Moor Park, the seat of Lord Ebury; at the fête of the Great Berkhampstead and Northchurch Cottage Garden Society, as well as in the grounds of J. B. Lawes, Esq., at Rothamsted Park, near Harpenden. They were also enabled, through the subscriptions of those who have already joined the Association, to offer prizes for the best supers of honey in wood, glass, or straw, at the Hemel Hempstead Cottage Garden Show, as well as at Great Berkhampstead. A public meeting was also held in the Town Hall, Hemel Hempstead, on Monday, July 29th, which was well attended by the labourers of the district, and during which Mr. John Hunter, Mr. S. J. Baldwin, and Mr. W. Martin gave some excellent advice with regard to bee-management to a most attentive audience. A genuine interest in bee-keeping has thus been excited in the western division of the county; and from the encouragement they have received, the promoters of the undertaking feel justified in endeavouring to form an association which shall embrace the whole of Hertfordshire.

MODERN BEE-MANAGEMENT.

IN response to the request of the Journal's veteran correspondent Mr. A. Pettigrew, whose new year's greeting to "all of every school" which will, I trust, be accepted as heartily as it was given, I shall be very glad, with the Editors' permission, to lay before their readers in a series of short papers some account of the methods followed by the most successful bee-keepers within the circle of my acquaintance. I have never, as all my friends know, sought to hold a monopoly of any such principles or practice as many years of study and experience have made my own, but have ever been, and I trust ever shall be, ready to "do good and communicate." My time and energies have in great measure been given for years past to the endeavour to introduce humane and profitable systems of bee-management among the cottagers of our land, and, in addition to the blessings of many such, it is no small satisfaction to find such a prominent writer as Mr. Pettigrew hailing me as one worthy to teach through the pages of such a valuable and widely circulated periodical as the *Journal of Horticulture*. Meanwhile, however, until I shall have time to collect my ideas into something like system, I shall occupy a short space in some account of that latest great improvement in bee-keeping, several times lately referred to in your Journal—viz., artificial comb foundations. Having been the first in this country to possess the now celebrated Root machine for rolling these, and having had two seasons' experience in the use of the foundations, many thousands of sheets having passed through my hands and their use having been on all sides voted a great success, I have reason to believe that a few remarks on that subject will be at the present time welcome to many readers.

NO. 1.—COMB FOUNDATIONS.—Artificial combs foundations have been used with more or less success since about the year 1843, when it appears a German named Kretchmer used strips of tracing linen, which after being dipped in wax were passed between engraved rollers. They came into more general use after 1857, when another German, Mehring, invented wooden moulds in which the wax was cast. These subsequently gave way to the metal plates so long used in this country. These plates impressed only the actual midrib of the comb and gave no side walls. The sheets formed by them were neither regular in thickness nor had they strength sufficient to support their own weight with adhering bees if used more than an inch or two in depth. Yankee ingenuity added the side walls, and then invented the present method of impression by means of engraved rollers.

So far the production has been generally voted a great success. Whether yet perfect is, however, still in question. To the eye these foundations seem perfect, far surpassing in regularity the natural comb itself, and while containing the proper number of cells to the inch they give also a much larger number of perfect cells to the comb. But some, who have probably been supplied with adulterated wax, or used it in too great depth of sheets, or improperly fastened, or under other unfavourable conditions, have complained of sagging, bulging, or breaking down. Experiments are therefore at present being made with sheets having wires inserted. These seem as yet to have been a failure in so far as that, while they prevent sagging, the bees refuse to rear brood in those cells through the foundations of which the wires pass. A cloth foundation is objectionable from the fact that the threads become more or less ruptured by the rollers, and the bees instead of building on it set to work to tear it down. Attempts, not without some appearance of success, are also being made in Germany and the United States to produce a greater depth of cell, but it seems at present unlikely that a machine can be made to produce these at a cost within the means of average bee-keepers. Indeed, for perfect adaptability for both brood and super comb, for convenience in handling, packing, and fixing, and for the readiness with which it is accepted by the bees, the present style of foundation seems to leave little to be desired. And it is no small testimony to its excellence, and to the skill of the one mechanic who makes the Root machines, that although not protected by patent like most Yankee novelties, he has enjoyed an envied monopoly in their manufacture for four years, notwithstanding their great cost—from £7 to £20.

This short history of comb foundations would not be complete without referring to the attempted use of various cheap substitutes for pure wax. Solid paraffin has been tried, but while it makes beautiful foundations and is even readily accepted by the bees, it cannot stand the test of warm weather, but invariably

breaks down; ceresin, a mineral wax, has also been tried, but the bees refuse it. Happily as yet pure wax is found to be the only satisfactory material for making comb foundations; and of this the common yellow seems to give the best results, at least where large sheets are used. The effect of bleaching wax is to render it harder and more brittle, and therefore less workable by the bees, and more apt to break down, probably owing to the oxydation of the toughening propolis which gives colour to yellow wax.

The notion that by increasing the size of the cell we might be able to produce larger and more powerful bees, also led to considerable confusion some years ago. Instead of five cells to the inch only four and a half were given; but although the difference seems a small one, it produced the strange result of worker and drone brood mixed indiscriminately in the same comb, and in many cases the queen refused to lay either a drone or worker egg in such abnormal cells. No doubt, however, the facility which foundations give of displacing old cocoon-clogged combs tends to produce a better developed race of workers. It is in the line of queen-rearing and selection that any permanent improvement in the physique of the bee must be attained. A powerful mother will produce a stout offspring. We may cause queens to be reared if we choose in artificial cells of large size, as large acorn cups dipped in wax; but that will make no perceptible increase in their size, since we find that in many cases royal cells are too large for their inmates to fill. Careful breeding from the best selected mothers, and soon we hope from selected drones, alone can improve the race of bees. The foundations now in use measure as nearly as possible five cells to the inch for workers, and four to the inch for drones.

When properly made the actual midrib of foundation is almost as thin and quite as transparent as tissue paper. The embryo side walls raise the actual thickness of the sheet to fully one-eighth of an inch, thus giving it the comparatively great strength resulting from the double series of arches and inverts. If a sheet be held between the eye and the light after being partially worked out by the bees, it will be at once seen that they have still further thinned the cell bottoms. The material excavated from these and the somewhat massive foundations of the side walls are certainly used by them in extending the cells; and if yellow wax has been used it will be evident from the colour that the material so obtained has sufficed to do so to the extent of at least half their depth when finished.

The main advantages of the use of this modern aid to bee-keeping are the following:—Straight combs are insured exactly where desired, and all worker or all drone according to the kind of sheets used. The bees are furnished with the greater part of the material necessary to build their combs, thus saving much exhaustive secretion, gaining time, and lengthening their short lives. A large force of bees that otherwise would have to remain quiescent while the wax was being secreted in their bodies is set free for foraging abroad. In supers especially the bees may be easily induced to comb-building long before the great flow of honey commences, so that when it does come there is abundant accommodation ready for it. The same advantage of course holds where it is necessary to provide a very fertile queen with room for egg-laying. From the regularity of their construction they occupy less space in the hive than natural combs, and each comb secures a larger proportion of brood. When the extractor is used, combs built on foundation can with care be emptied of their honey so soon as filled, while natural-built combs of the same age would almost certainly break to pieces. They are also of great value to those who can secure condemned bees late in the autumn, as a much larger quantity of comb can be thus built before winter. Altogether I think with Mr. A. Pettigrew we may safely say that the introduction of comb foundation begins a new era in bee-keeping. We see from the immense quantities and the low price of American honeycomb now flooding our markets, what rich harvests must be obtained by those who avail themselves of this and other modern improvements. In my next I shall describe the best methods of using the comb foundations.—WILLIAM RAITT, *Bescroft, Blairgowrie.*

OUR LETTER BOX.

CONCENTRATED MANURES (*J. P.*).—We cannot advise you respecting the value of any concentrated manures, as they are open to much objection unless ascertained by analysis to be adapted for the crops intended to be grown. As members of the Royal Agricultural Society have the privilege of obtaining an analysis from Dr. Voelcker at a small cost, we advise purchasers to obtain the manures they require by guaranteed analysis, and if they have any doubt about their value, as soon as the bulk is delivered to take a fair sample from several bags, mix them and send them to be analysed by a competent person, asking for the value of the article to the purchaser. Instead of concentrated manures, we prefer to buy our articles separately, taking from 4 to 5 cwt. of dissolved bones for the turnip crop, and the same quantity with 2 cwt. of Peruvian guano added for the mangold crop.

CRÈVE-CŒURS UNHEALTHY (*E. H. N.*).—Crève-Cœurs are subject to diseases which are not common to our breeds. Among them may be classed the running of the eyes of which you speak. It is not often fatal, but it is contagious, and the cocks are more prone to take it than the hens. Separate the invalids from the healthy birds, wash their eyes with a mixture of vinegar and cold water or a solution of alum, feed them on soft food, rather stimulating than otherwise, and withhold water entirely till the patients are restored to health.

CHICKENS WITH DEFORMED FEET (*S. C. O.*).—The leg you enclose has been broken probably since death, but it is that of a cramped and apparently under-fed chicken. Such a result might arise from roosting on a damp board. During these long and cold nights the legs and feet drawn up under the chickens become almost paralysed, and the birds can only stand with pain. They then rest on their knee joints, as this has evidently done, and begin to waste. We can imagine nothing worse for chickens than a board covered with hay. Give them an earthen floor. Keep the hen under the rip for some weeks to come. Let the rip be in some place quite protected from draught or sharp winds. Feed them generously, both for mother and brood. Let them have only beer to drink; feed them morning and evening with stale bread or crumbs steeped in strong ale. It is most essential they should be fed early in the morning before daylight, and they should be supplied with sods of growing grass cut with plenty of fresh earth. We rear hundreds in this way and seldom lose one.

FOWLS FOR WINTER (*Constant Reader*).—There is no breed the property of which is to lay in the winter. All pullets lay when they attain the proper age, whether it be in December or July. Brahmas and Cochins lay earlier than other breeds. We should not be surprised if the Hamburgh pullets you bought had laid their first—their pullet's—eggs. After that time they are hens, and lay only in their regular season. They should have laid last July. They will doubtless do so within a month. We do not like buckwheat, it is too fattening. Wheat is not good food. Have your barley ground, you will save money and your fowls will do better. Give slaked barleymeal morning and evening, mid-day maize or scraps. Supply the birds if they have no grass with sods cut with plenty of earth, or other green meat.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. Jan.	Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 8	29.509	29.6	28.0	E.	34.3	34.2	27.1	49.5	26.7	—
Th. 9	30.037	31.3	29.7	N.E.	34.0	36.0	25.0	57.2	22.0	0.010
Fri. 10	29.651	25.3	23.6	S.E.	33.9	27.6	24.1	42.2	21.2	—
Sat. 11	29.572	24.3	24.1	N.	33.4	27.0	22.2	41.1	19.1	—
Sun. 12	30.040	20.1	19.6	N.W.	32.9	33.2	19.2	52.8	18.5	0.070
Mo. 13	30.055	41.9	41.5	S.W.	33.0	46.0	20.6	47.3	18.3	0.010
Tu. 14	29.980	43.0	43.0	S.	32.9	45.8	37.7	46.7	30.5	0.268
Means	29.849	30.8	29.9		33.5	35.7	25.1	48.1	22.3	0.453

REMARKS.

8th.—Clear, bright, and sunny day, high and very cold wind; bright moonlight night.

9th.—Clear cold morning, little sleet, bright sunshine at intervals; rather overcast in afternoon; fine night.

10th.—Little snow fell between 9 and 10 A.M., then fine and bright; overcast in afternoon and very cold; fair in evening; snow at night.

11th.—Ground white with thin layer of finely crystallised snow, which continued to fall until about noon; the snow was remarkable for the beauty, variety and large size of the crystals. Fine afternoon and evening, but overcast at times.

12th.—Very fine, bright, cold morning; overcast and thick in afternoon; snow at night, but only a little, which soon melted, the temperature at night being much higher than in the morning.

13th.—Warm and damp throughout the day; foggy between 6 and 8 P.M.

14th.—Damp warm morning, rather windy; rain after 1 P.M.; windy again in evening.

Another cold week in spite of the sudden rise of temperature on the 12th.—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 15.

PRICES have somewhat improved, the late frosts checking the supply, but trade is still quiet. Large quantities of St. Michael Pines have reached us this week, and are at very low prices.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	2	0	to	6	0	Melons	each	0	0	to	0	0
Apricots	dozen	0	0		0	0	Nectarines	dozen	0	0		0	0
Chestnuts	bushel	12	0		16	0	Oranges	℔ 100	4	0		10	0
Figs	dozen	0	0		0	0	Peaches	dozen	0	0		0	0
Filberts	℔ lb.	0	9		1	0	Pears, kitchen	dozen	0	0		8	0
Cobs	℔ lb.	0	9		1	0	dessert	dozen	3	0		8	0
Grapes, hothouse	℔ lb.	2	6		8	0	Pine Apples	℔ lb.	2	0		4	0
Lemons	℔ 100	4	0		8	0	Walnuts	bushel	0	0		0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	2	0	to	4	0	Mushrooms	pottle	1	6	to	2	0
Asparagus	bundle	0	0		0	0	Mustard & Cress	punnet	0	2		0	0
Beans, Kidney	℔ 100	1	0		1	6	Onions	bushel	2	6		3	0
Beet, Red	dozen	1	6		3	0	pickling	quart	0	4		0	0
Broccoli	bundle	0	9		1	6	Parsley	doz. bunches	2	0		0	0
Brussels Sprouts	½ sieve	2	0		4	0	Parsnips	dozen	0	0		0	0
Cabbage	dozen	1	0		2	0	Peas	quart	0	0		0	0
Carrots	bunch	0	4		0	8	Potatoes	bushel	3	6		4	6
Capsicums	℔ 100	1	6		2	0	Kidney	bushel	4	0		5	0
Cauliflowers	dozen	3	0		6	0	Radishes	doz. bunches	0	0		0	0
Celery	bundle	1	6		2	0	Rhubarb	bundle	0	0		0	6
Coleworts	doz. bunches	2	0		4	0	Salsafy	bundle	0	9		1	0
Cucumbers	each	0	4		1	0	Scorzonera	bundle	1	0		0	0
Endive	dozen	1	0		2	0	Seakale	basket	2	6		3	6
Fennel	bunch	0	3		0	0	Shallots	℔ lb	0	3		0	0
Garlic	℔ lb.	0	6		0	0	Spinach	bushel	2	6		4	0
Herbs	bunch	0	2		0	0	Turnips	bunch	0	2		0	0
Lecks	bunch	0	2		0	4	Veg. Marrows	each	0	0		6	0

WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 23—29, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
						h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
23	TH	Royal Society at 8.30 P.M.	42.6	32.4	37.5	7 54	4 31	8 20	5 55	1	12 4	23
24	F	Royal Institution at 8 P.M.	43.1	32.1	37.6	7 52	4 32	8 36	7 10	2	12 19	24
25	S	Royal Botanic Society at 3.45 P.M.	43.4	32.3	37.9	7 51	4 34	8 50	8 22	3	12 33	25
26	SUN	3 SUNDAY AFTER EPIPHANY.	45.5	32.3	38.9	7 50	4 36	9 2	9 33	4	12 47	26
27	M	Royal Geographical Society at 8.30 P.M.	44.6	31.2	37.9	7 48	4 38	9 15	10 42	5	12 59	27
28	TU	Royal Medical and Chirurgical Society at 8.30 P.M.	45.8	30.8	38.3	7 47	4 39	9 27	11 52	6	13 11	28
29	W	Society of Arts at 8 P.M.	45.6	31.5	38.5	7 46	4 41	9 42	morn.	7	13 22	29

From observations taken near London during forty-three years, the average day temperature of the week is 44.3°; and its night temperature 31.8°.

DINNER-TABLE DECORATION.

THE reaction which has taken place in dinner-table decoration affords ample proof that it has been overdone. Florid ornamentation giving place to chaste simplicity is a sign of progress, a natural outcome at which we experience no feeling of surprise, for it is no mere passing glance to which we submit our work, but the crucial test of a close inspection of an hour or two's duration.

In writing these notes I have a twofold object in view—namely, to assist beginners and others by showing how flowers have been arranged successfully in various ways, and also to induce horticultural societies to step out of the beaten track and offer special prizes for something more than the stereotyped "three stands" with which so many of them appear willing to rest content, as though further improvement or progress were impossible, or at any rate uncalled-for. Such stands are now only employed very rarely, decided objection being taken to floral partitions along the centre of a table, or any high stands or plants calculated to obstruct the view across it, except perhaps one to impart due importance and height to the centre. A chandelier suspended over the centre may be turned to such excellent account, as I have repeatedly explained, that even there a tall stand may advantageously be dispensed with for a cup or other suitable trophy. It must be granted that the "three stands" of which committees of horticultural societies appear so fond possess the merit of distinct characteristics; harmony, lightness, elegance may all be claimed for them, and justly too; but, then, there can be no reason why other uniform, harmonious, and elegant floral combinations may not be found to impart variety and change nightly so long as may be necessary.

Among "low decorations" there are few more beautiful than transparent glass fish bowls of various sizes, dressed lightly so as not to obstruct the play of lamp lights upon the glass and water. For a table of some fourteen covers we should require a large central bowl elevated about 4 inches above the tablecloth upon a circular wooden block covered with crimson velvet or plush. Two rather smaller bowls for each end, each having a dozen very small bowls, say holding about half a pint, arranged around them in a circle. Above the large central bowl we will suspend from the chandelier five of the small bowls, four equidistant around the outside, and the fifth from the centre and about 3 inches lower than the others. Each suspended globe might contain four long pendant sprays of Selaginella cæsia, one on each side, having its tip intertwined with that of another in the next globe, so as to form a festoon of the rich bluish greenery; a spray or two of pink, crimson, or scarlet flowers, a couple of fronds of Maidenhair Fern, and a few spikes of Quaking Grass (the dried common sort at this season of the year), and the large Briza maxima when in the full beauty of its glossy pink tinge just before ripening.

Fish bowls should not be used more than once in the same week, with the exception of the small ones suspended from the chandelier, which are again indispensable on a "Fuchsia night" when clustering crimson sorts of Fuchsia are introduced among the Lycopod and Maidenhair Fern, no bowls being used upon the table, but a wreath of cut Fuchsias arranged around a central plateau bearing a cup. Bouquets of Fuchsia are laid upon the cloth among the dessert dishes and connected by a chainwork of long sprays of Selaginella running right round the table. For a change at this season of the year the chandelier may be filled with the long dark green flag-like foliage of Iris fœtidissima intermingled with a few pods of its brilliant scarlet berries; and in autumn when the foliage of Ampelopsis Veitchii is in the full glory of its autumnal tints of crimson, scarlet, yellow, orange, carmine, green, and purple there is nothing like it, not only for wreathing a chandelier, but for making a scrollwork of exquisite beauty upon the tablecloth. In doing this the lines of the scrolls are first delineated with selected shoots, along which highly coloured leaves, picked singly for the purpose, are clustered artistically and intermingled with other foliage, such as very small fronds of Maidenhair Fern, small sprays of Selaginella, young richly coloured leaves of Cissus discolor and shoots of Panicum variegatum. I have also used leaves of the common Blackberry bramble when they are of a very deep rich crimson hue, also Medlar leaves, which change to as rich colours as the Blackberry, and Pear leaves which sometimes are as brilliant as the Ampelopsis.

For table wreaths in midwinter one would ask for nothing better than flowers of the crimson and white Camellia with four or five deep green glossy leaves on the stalk of each flower, and enough of Fern and Lycopods to impart fulness with lightness. In summer, wreaths of Roses with plenty of foliage and Rose buds are always liked, provided the requisite good taste is brought to bear upon the arrangements. It is, however, unnecessary to multiply examples, every season bringing us its own peculiar treasures usually in such abundance as to afford ample means for the requisite nightly change. In winter when flowers are scarce we cannot indulge in so much variety as at other times, but it is really questionable if this is not an advantage, for it is surprising how chaste and perfectly satisfactory an arrangement may be made with a very few flowers. Take, for example, three or four white Camellias, half a dozen trusses of scarlet Geraniums, and some green sprays for a central bowl or stand, with a dozen or two slender vases 6 or 7 inches in height dotted about the table. These connected by slender festoons of Selaginella and containing two or three spikes of Roman Hyacinth, Lily of the Valley, or Begonia, with a frond or two of Maidenhair Fern, and perchance two or three spikes of Grass, and it would be difficult to do better even with large conservatories at our disposal.—EDWARD LUCKHURST.

PEARS: WHAT SORTS SHOULD BE GROWN?

IN the number of "our Journal" for January 2nd "R. M. H., *Cheshire*," puts the above question, and I think it would be for the benefit of pomologists, either amateur or

professional, to have it fully and truthfully answered. I cannot think of any way to get the desired answer other than following the steps of our rosarians and Apple growers—to have a Pear election. There is no doubt that there are far too many Pears cultivated: the number, especially of autumn Pears, is most unnecessarily long, while there is constantly the greatest disappointment as to the fruiting, and more particularly the ripening of winter Pears, which either shrivel or are good-looking and firm enough, but are absolutely tasteless. It is very frequently the case that a fine dish of Pears appears at dessert and some guest puts forth a hand to take one, when the hostess timidly remarks, "I am afraid our Pears are not very good this year," or nothing is said, and the expectant guest, longing for a juicy Pear, finds he has come upon a Turnip in the shape of a Pear, and one piece is eaten, the rest left. Now, this should not be; but the fact is that gardens are too full of inferior fruit, and the trees once there people have not the heart to cut them down. I would therefore propose that something be done to improve matters in this division of fruit-culture. Let growers of this ornamental and, when good, most excellent tasting fruit, which has also just according to its goodness a high commercial value, take note this coming season, refreshing their memories (which are often deceptive) by their palates, and then send in the names of the Pears which they consider the best. I will, if all's well, and with the permission of the Editors, take charge of the lists, which could be sent under cover to the office, and I be the returning officer.

The lists should be divided into summer, autumn, and winter Pears. Summer from the earliest ripe to the end of September; autumn, so-called, from October 1st to November 30th; and winter from December 1st to any time next year, however late.

I am aware that according to the general idea of seasons the above arrangements may savour of a contradiction, but October and November form a strong Pear season, and we could pomologically not call Pears then ripe by the name of winter Pears. However, I am open to any suggestion. We should have also to draw a line between the north of England and the south. The line I should propose would be a straight one from Boston in Lincolnshire to Chester. I think that would do, and call all the district above the line the north, all below the line south. This division might, however, be changed if the majority thought another is better. Scotland might be included in the northern division; for I believe often Lancashire and Yorkshire are colder than many parts of Scotland, and I found four winters in Forfarshire better than one I spent in Lancashire. Each writer sending a list might add his county as a guide. The twenty best Pears would perhaps be sufficient to name.

There is even a stronger necessity for an election of Pears than for one of Apples, because Pear trees live so much longer and are so much handsomer; and having their place generation after generation, no one, unless he be a vigorous-minded man or a new comer, likes to cut them down, when in truth nothing is a greater cumberer of the ground than a huge Pear tree, a yielder of poor-tasting or little fruit.

There is another reason, now-a-days, of special power. The old proverb, "Plant Pears, you plant for your heirs," has lost much of its truth and influence now that it is known that the Pear grafted on a Quince stock produces fruit very early indeed. Then, too, another advance is being made; people are ceasing to grow Pear toys and beginning to grow productive Pear trees—not pinching back and pruning into a set formal shape, but merely thinning out branches, and not permitting one to cross another. Hence, we are getting soon-producing and good-sized trees, and without size of tree you cannot have much fruit; this stands to reason. Having early fruitfulness and some size, the next necessary step in a right direction is to secure the best varieties, not mere good-looking, but good tasting fruit; we want fruit good all round in quantity and quality. This end we shall, as it seems to me, be most likely to secure by lists sent in by practical men. From this would result accurate knowledge leading to sensible action.

Prior to the lists being made out there is no reason why the subject of Pears should not be handled by both amateurs and gardeners whose experience lies in this direction. I quite agree with "R. M. H., *Cheshire*," that, as a rule, out "of two dozen sorts grown in a garden, one dozen are always sure to be of no value," and hence, as he says, "the pecuniary loss in the matter is very considerable."

I see that Mr. William Taylor calls me "a courageous man to write about the pleasures of hardy fruit culture after two seasons of general failure." My reply is, that I am much obliged to him for the epithet "courageous," and which all gardeners ought to try and deserve. My motto is, "Hope on and hope ever." After two bad seasons we are the more likely to have a succession of good years. The first care of a gardener is no doubt to grow fruit for his master, but he ought to take an interest in the beauties of form and colour; it helps a man, too, in many departments of his work, and a high taste in these things gives its possessor pleasure. This severe weather will thin "the mischievous birds," from the depredations of which and over-preservation in many country districts gardeners suffer greatly. Remember, however, that though the thrush and blackbird soon die in snowy winters, our worst enemies the bullfinches are not easily killed. For them powder and shot are needed.—WILTSHIRE RECTOR.

Note.—I have alluded to the great age and size to which Pear trees attain. In a parish a few miles from my own there is a field which is described on the parish map "Pear-tree Field." In the middle of it rises a magnificent tree quite of the forest-tree size. It is a Pear bearing a small green fruit, and called in the village "Honey Knob." Is such a name known to readers, or is it probably a synonym for "Green Chisel?"—W. R.

THE NATIONAL ROSE SHOW.

I CERTAINLY cannot agree with "WYLD SAVAGE" respecting the proposed change in the schedule of the National Rose Show. We know quite well the more classes there are the more exhibitors there will be, consequently the Show must be the larger, and the public now like to see as much as possible for their money. If we put the number of exhibitors in the forty-eight class at half a dozen, the number of blooms they would stage would be 288. Now, if the forty-eight class is done away with, will there be the gain of those in the smaller classes? I think not. "Ah!" the "WYLD SAVAGE" may exclaim, "but the Show will be the better through having an evener lot of blooms shown generally." If "WYLD SAVAGE" looks at the state of the poll of the last Rose election he will find it possible to stage from the list there given Roses of sufficient merit to satisfy even his critical eye.

In curtailing the number of classes I think the Committee are losing sight of the principal object for which the National Rose Society was started—viz., the more general cultivation of the Rose. Exhibitors having scored a prize at any of the principal Shows, more especially at the National, are induced thereby to add largely to their collection, so that if an amateur begins with his box of six, he is carried on with an irresistible impulse to try and compete in the class for twelve, and so on with the other classes; and I am firmly convinced that if the forty-eight class was continued, in a year or two we should find there would be an increase in the number of competitors in that class.

Again, I would support "MID-SURREY" in cancelling fourth, fifth, and sixth prizes, and either make additional classes or add to the leading prizes.—OXONIAN.

THE CHRYSANTHEMUMS FAUST AND FINGAL.

PERHAPS more has been written lately respecting the merits of these two flowers than any others of any family of winter-blooming plants in cultivation. When the variety Faust was first added to our collection the character which I received with it was only a moderate one, and when the first flower opened I came to the conclusion that our new friend was only a mere apology for a distinct variety of Chrysanthemum. I entertained this opinion for three years, until I was about to discard Faust from our collection. I, however, decided on giving it another trial on a different system of treatment. Formerly I inserted the cuttings in November, and selected the ordinary crown bud which appears on the second stoppage about the beginning of September; this and the terminal crown produced blooms which were flat, half reflexed, loose, and quite unattractive.

Now for the different system, which proved successful. I struck the cuttings in March; when struck they were pinched at the third joint, from which three shoots were preserved; these were again pinched in May, after which the first crown bud which appeared was selected. This bud appears under the above treatment about the middle of August, and produces flowers of the finest quality. The petals are half quilled and very

tightly laid together, in character closely resembling a fine quilled Aster.

Faust is a flower which requires no dressing further than relieving the centre a little during the opening period, to allow equal development over all the flower and cause it to form like a cricket ball. Moreover, it is one of those varieties which the hand of Nature always bedews with a sort of visible fovilla, a point of beauty which every variety does not possess. It is in my opinion one of the finest in our collection, which is composed of nearly one hundred varieties from the oldest to almost the newest. I showed it in the twenty-four at Liverpool last November, and my employer complimented me on its production, and observed that it was the prettiest Chrysanthemum bloom he had ever seen, and it is a well-known fact that he is one of the greatest Chrysanthemum enthusiasts to be found.

In turning to Fingal I wish to be honest. I do not mean to laud the one and disparage the other, but I will characterise them according to their merits from my experience. Fingal, if grown on the terminal crown, is moderately neat but comparatively small; on the other hand, if taken on the crown bud at the second stoppage it is in most cases very large, the petals standing erect like the bristles of a hedgehog. It cannot be improved by dressing.—H. ELLIOTT.

NOTES ON PEAS.

ONE of the most important crops in the kitchen garden is that of Peas. No other vegetable, I think, unless it be Potatoes, receives so much attention from hybridisers, consequently new varieties of Peas are being constantly introduced in such numbers as to bewilder the growers who have to select from the various catalogues. The trials of Peas at Chiswick to a certain extent help to obviate this difficulty; but I, for one, would like to hear what success private growers have had with some of the newer varieties, and trust that my experience may prove equally interesting to others.

For our earliest supply we made during February two sowings each of Caractacus, The Shah, William I., and Laxton's Unique, and we also planted some of the three last mentioned varieties in March that were raised on turves in a Peach house, thereby gaining eight or nine days. Caractacus, although by far the best early Pea grown in the fields, was with us comparatively worthless, nor will The Shah again be grown, William I. being superior to it in every respect. The Shah was very prolific and of good quality, but the pods were small and fit for picking a week later than William I. Unique was the best dwarf early wrinkled-Marrow tried; it is well adapted for pot or framework, and much superior to McLean's Little Gem.

Peas that grow quickly out of the reach of birds are best for sowing here, it being almost impossible to keep the birds off the rows. The report of a gun is the most effective, but that cannot always be going, consequently any variety not possessing this quick-growing quality is considered unprofitable. Advancer and also Laxton's Standard for this reason are condemned. One of the best to start away, and which is really an excellent second early, is the Huntingdonian, and this was followed by Culverwell's Telegraph, Carter's Little Wonder, and Carter's Challenger. All these are very distinct and valuable varieties in every respect. The former is tall-growing, and for exhibition purposes is, I think, unequalled, unless it is by Carter's Telephone, which I am informed by a private grower is equal to it in size and of rather better quality. Little Wonder is of moderate growth (about 2 feet high), and with me superior to G. F. Wilson, excellent as that variety is generally considered. Challenger is also of very moderate growth (3 feet), and taken altogether was the best Pea grown here. It is very prolific, the pods long and well filled, the peas though comparatively small being of an excellent colour and flavour, and it was less injuriously affected by the extreme hot and dry weather experienced than either of the moderate-growing varieties tried. Dr. McLean again did well, although scarcely a second early. James's Prolific is an excellent free-bearing variety, but not wanted where Dr. McLean does well. Veitch's Perfection still holds its own, but I do not find Criterion so good as I expected; it did not stand drought so well as Sutton's Duchess of Edinburgh, which variety and also Ne Plus Ultra it very much resembles. Giant Emerald Marrow is a very distinct and good Pea, and the same remark applies to the Emperor of the Marrows, which proved superior to Ne Plus Ultra for late work. The five last mentioned varieties are all very tall-growing. For gardens where large stakes are unobtainable I should recommend the following arranged in their order of succession, two or more sowings to be made of each:—William I., Little Wonder, and Dr. McLean; Challenger, Veitch's Perfection, and Omega—a good dwarf variety for late work.

One of the greatest attractions in the fruit and vegetable tent at the provincial meeting of the Royal Horticultural Society, held at Preston last July, was the remarkable display of Peas staged in competition for special prizes offered by Messrs. James Carter & Co. of London, and also for the Society's prizes. Such dishes as those staged have, I think, never been equalled. Culverwell's Telegraph, Carter's Little Wonder, and Challenger were the most conspicuous, and there were also many good dishes of Criterion, Dr. McLean, Ne Plus Ultra, and Veitch's Perfection. Lovers of Peas will, I have no doubt, have another opportunity of witnessing a similar exhibition, the Messrs. Carter having again offered liberal prizes to be competed for at South Kensington, June 24th, the varieties staged to be the three above mentioned, and also Carter's Telephone.

I was lately rather surprised to learn that the most successful exhibitor of Peas at Preston is an amateur, by trade a butcher, who takes as much trouble with them as do some notable amateurs with their Roses in the way of shading, &c. The true secret of his success (of which he is justly proud), was the free use of liquid blood manure, of which he has always a good supply at hand. I hope he will repeat his success at the Kensington meeting.—W. IGGULDEN.

JUDGING CHRYSANTHEMUMS.

WE may presume one of the principal points in the discussion relative to the proposed contest settled—namely, the list of varieties, and I take the opportunity to thank the Editors for deciding on that point, also Mr. Moorman for his selection of forty-eight varieties, which is equally fair to exhibitors north and south.

The next two important points to be settled are definitions of blooms and rules for judging. As no substantial rules have yet been given and decided on, these points cannot be too clear and simple. I think no better, nor plainer, nor more appropriate rules, &c., can be laid down than the under-mentioned, for the substance of which I am indebted to the "Rosarians' Year-Book," edited by the Rev. H. H. D'Ombrain, and which are as follows:—

DEFINITION OF BLOOMS.

1. A good Chrysanthemum must have form, size, brightness, substance, and be at the time of judging in the most perfect phase of its possible beauty.

2. A Bad Chrysanthemum.—All blooms shall be considered bad that have faulty shape, confusion of petals, removal of lower petals, faded colour, and which are oversized to the extent of coarseness, or undersized so as to render them puny, according to the character of each variety.

3. Form shall imply petals abundant and of good substance, regularly and gracefully disposed within a circular symmetrical outline.

4. Brightness shall include freshness of colour, brilliancy, and purity.

JUDGING.

1. Judging shall be by points. Three points shall be given for the best blooms, two for mediums, one for those not so good but not bad enough to cut out, and an extra point for a very superior bloom.

2. One point shall be taken off from the box for every case of decided badness.

3. Where stands are equal in respect of blooms judges shall proceed to consider the general evenness, variety, arrangement, and setting up, the boxes being placed side by side and in the same light for that purpose.

If these definitions and rules meet the views of growers generally both in the north and south I would propose for consideration wherever the contest is held that a list of the varieties and the rules, &c., for judging be inserted in the schedule, so that the proper basis for judging can be carried out with fairness to all parties concerned.—W. BARDNEY, *Norris Green.*

P.S.—One particular point in Mr. Elliott's letter, and one upon which he lays great stress, is not likely to meet the views of many exhibitors of the Chrysanthemum either north or south. How can the blooms be cupped with leaves on the stems? And further, a bloom from the crown bud will often run 6 or more inches without a leaf. Roses are considerably improved with buds and foliage attached when shown, but I

cannot see any improvement on the general system of showing Chrysanthemums.—W. B.

CRASSULA LACTEA.

At the last meeting of the Royal Horticultural Society's Committees at South Kensington Mr. Thomson of the Crystal Palace exhibited admirably grown plants of this Crassula; Messrs. Veitch also exhibited plants, which we had previously seen in their nursery at Chelsea, some of them being grown in

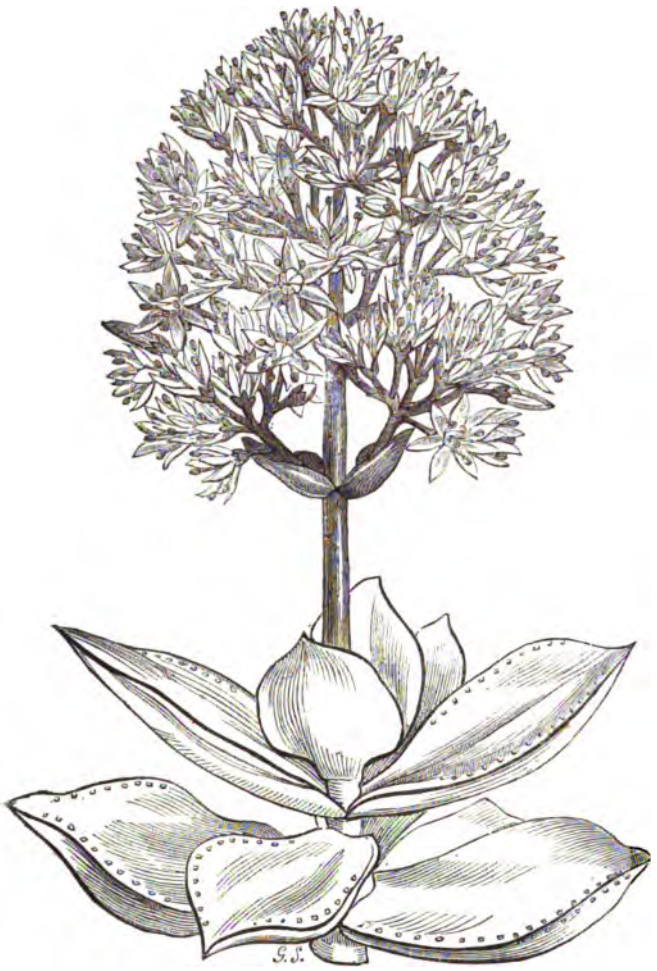


Fig. 7.—Crassula lactea.

baskets. Whether grown in baskets or pots the plants are useful for yielding a profusion of white flowers during midwinter of a character quite dissimilar from all other plants flowering at the same period. Like some other plants, Sedum spectabile for instance, Crassula lactea is greatly improved by generous culture, and plants such as those above referred to are eminently worthy of special note. It may be remarked, however, that when grown in pots the plants produce much larger flower heads than when grown in baskets, and it is for pot culture especially that this old and almost forgotten Crassula is likely to become useful. We have been favoured by Mr. Thomson with the following remarks relative to the culture of this plant:—

"Crassula lactea, which was introduced from the Cape of Good Hope in 1774, is a white-flowering plant but little known or cultivated; but now that flowers are more the fashion than formerly, and when white flowers especially are in great request in the dull days of winter, anything to relieve the monotony of the Camellia and Primula must be looked upon as an acquisition. This Crassula is a plant of easy culture, and requires a temperature only warm enough to keep out the frost, except when it is about to come into flower. It is better then to remove a batch of the most forward plants into a warm house temperature from 55° to 60°. If this is done every ten days a good succession of flowers can be kept up.

"The cuttings are best taken off in January or February. We insert four cuttings in a 60-sized pot, strike them in heat, and keep them there until the pots are well filled with roots. The plants may then be shifted into 48's or 5-inch pots. The soil in which the cuttings are struck consists of loam, leaf soil, sand, and a good proportion of burnt ballast. When the plants are shifted into their flowering pots some good decayed cow manure is added to the soil. They are kept in a close pit or house after being potted into their flowering pots until the roots take hold of the soil, they are then placed in a cold frame, from which the sashes are removed during July, August, and beginning of September to mature the growths of the plants."

A CHEAP PEACH HOUSE.

A correspondent asks if no mistake has been made in the calculations of the cost of the cheap Peach house (see page 25). I can confidently reply, None whatever; and I do so in this prominent manner in order to induce others to see what they can do, my sole aim being to assist lovers of a garden in obtaining the luxury of a glass house without encroaching unduly upon limited means—those who must otherwise deny themselves the convenience of a little glass protection or accommodation.

Before commencing building, or rather before knowing if I could do so at all, ways and means had to be considered closely. Quantities and prices were examined and compared, and timber and glass were eventually procured at the lowest rates. By giving my handy man the length of every piece of timber, showing him how and where it was to be fixed, and taking a couple of garden labourers to assist him, and also to do the whole of the painting and glazing, the work was brought to a satisfactory conclusion without a single hitch. Only two coats of paint were applied in addition to the priming, as being enough to preserve the woodwork for twelve months, in view of a subsequent annual coat of paint—an admirable plan taught me by the late Mr. Pearson of Chilwell, tending to keep the roof both fresh-looking and sound.

"J. W." must also not ignore the roofing slates between the piers, for they are materially cheaper than brickwork. The absence of front ventilators is also a saving, and the clamp bricks are much cheaper than kiln bricks. None of these apparent trifles must be overlooked, nor will it answer after procuring building materials at low rates to hire mechanics at 9*d.* an hour to do the building.

Excellent Grapes could be grown in the Peach house, and a span-roof built in a similar manner would form an admirable plant house at a proportionate increase of cost. There must, however, be no waste of time or material; every calculation must be made and the entire work thoroughly digested before an order is given for a single sashbar or square of glass. If it were a very small house of only 20 or 30 feet long it would cost more per running foot than a long house with no partition, because of the expense of the ends, really alike in both cases, but apparently less in a long house, simply because the cheaper portion of the building is so much longer, and in a close calculation the cost of the ends is of course spread over it.—Edward Luckhurst.

DRESSING CARNATIONS.

The discussion upon dressing Carnations amounts to nothing. As one who has been an acting secretary and conductor of the principal horticultural societies in Manchester and neighbourhood since the year 1830, I can vouch that I never heard a single murmur or remark as to dressing at the various exhibitions. All seemed to acquiesce in its adoption.

Those who are growers and take the notice necessary in the blooming season watch daily the expansion of the bloom, and should it happen that a petal or petals are coming out of the calyx misformed, then the tweezers are brought out and Nature is assisted so that they may grow in proper shape. If Mr. Peach had paid attention to this he would have remained silent. This is dressing No. 1, and is known only to the operator. If this were not attended to, what few flowers would necessarily be fit for exhibition? I know of no other flower that requires so much attention as the Carnation. If Nature puts in flake petals and stripes where they are not required, would an exhibitor let them remain when he can dispense with their having a few superfluous petals? The con-

troversy has arisen from disappointed exhibitors who are not able to dress their flowers, and others by superior dressing have placed their flowers in a winning position. I will put a case analogous to flower-dressing. Suppose a notice is given out in some village school that a visitor would come to examine the scholars in learning as well as to neat appearance, and these scholars being full of life and playfulness and regardless of demeanour would go home and tell his or her mother that they were to be inspected in the afternoon, would she not take every pains to send them as neat and as nice as possible? Every garment and everything about them is scrutinised and put in a proper state. What is this but dressing? So with flowers: cultivation does much, but art does its part also.

I have been for nearly fifty years a judge in London, Birmingham, York, Leeds, Liverpool, Manchester, and most of the important shows in the country, and I never heard the slightest hint against dressing flowers. All were satisfied; and if the exhibitors were not able to dress, there were professional dressers to be hired. I had to do this and to pay the price given during my connection with floriculture. A good dresser had 5*s*. per day and all expenses; and if he were very successful he was fêted, and not the slightest grumbling was heard. Most of the higher class of florists are also good dressers; as examples I will name a few—E. S. Dodwell, Charles Turner, B. Simonite of Sheffield, and many of minor note.

A dresser must be well up in the properties, and capable of developing them. Many a flower is spoiled by a clumsy dresser.

I now close my remarks in a friendly spirit, and with that feeling which I hope will always characterise an honest florist.—JOHN SLATER.

SEEDS FOR SOWING.

IN reply to "G. O. S." I will state my experience of old seed. I sowed the following by way of trial in the spring of 1877, the seeds having been purchased as new the year previously. Peas, Broad Beans, Scarlet Runner and Dwarf Kidney Beans, Brussels Sprouts, Broccoli of various sorts, Savoy, Turnips, Carrots, Onions, Parsley, Parsnip, Radishes, Lettuce, Endive, and Tomatoes. All came up well with the exception of the Scarlet Runner and Dwarf Kidney Beans. The former never came up at all, and the latter very sparingly. The Peas, Broad Beans, &c., answered my expectation as regards good crop and quality. The Tomato Orangefield Dwarf gave a splendid crop, yet I do not advise anyone to sow old seed instead of new, as the former is longer in germinating, and some of the crops are fourteen days later; and in wet seasons, perhaps, old seed might not turn out so well.

I sowed the seed by way of experiment, as, like "G. O. S.," I had a quantity of old seed by me. The plants raised from the old seed are certainly not so rampant in growth as those raised from the new, but the quality of the crop is everything that could be desired.

Various flower seeds I have also sown, but more anon. I have now by me three dozen healthy herbaceous Calceolarias, all raised from seed that was at the time of sowing three years old.—F. H. FROUD.

GILBERT'S CABBAGE BROCCOLI.

I HAVE read the remarks of Mr. Iggulden (page 46) on this subject, and also your appended note, and, so far as I am able to understand, Gilbert's Cabbage Broccoli now stands in much the same position as it did before. About it being certificated prematurely little need be said; I for one do not think this was wrongly done. Many things are shown at Kensington of questionable character; let them be sent to Chiswick on trial by all means. Others are shown of so decided and apparent merit that to withhold a certificate or send for trial were superflous. I understand this Broccoli is thoroughly "fixed," coming quite true from seed, with no deviation to its leading parent the Broccoli. Will Mr. Iggulden answer for his "mongrels" retaining their character under the same test? If they will not do this they have no claim to comparison. Cabbage Broccoli of Mr. Iggulden's stamp are common enough in every large quarter of Broccoli, neither are they confined to any particular variety, but like other sports they are useless for breeding, and cannot be classed as a distinct vegetable. The flavour of these, too, as I have tested over and over again, do not all agree, very few of them exceeding an ordinary Cabbage, and none of them that I have ever tasted come up to Gilbert's. Its acquisitions may be briefly summed up in its fixed character, hardy constitution, and perfect Broccoli flavour. My only object in referring to this subject is to do what I consider justice to a new vegetable which I feel certain will prove of much value to all kitchen gardeners.—A KITCHEN GARDENER.

I HAVE read Mr. Iggulden's remarks on Mr. Gilbert's Cabbage Broccoli with some surprise, and I venture to submit that Mr. Iggulden's opinion is arrived at somewhat hastily. Is the united judgment of a body of practical men to be ignored on the ground of Mr. Iggulden having a strain of bastard Broccoli which plays all sorts of tricks upon him, and which turns out to be a Broccoli one year and a Cabbage the next? I have both seen and tasted Mr. Gilbert's Cabbage Broccoli, and I venture to challenge Mr. Iggulden's assertion that he has ever tasted a Cabbage in his life possessing a flavour which would bear any comparison with the Cabbage Broccoli. The samples that I have seen and tasted were perfect cones of solid white. I could see no trace of "twisted" leaves, and when cooked and served up they were pronounced delicious, as undoubtedly they were. I think such a vegetable at this time of year is a real acquisition, and I only wish I had such mongrels to cut at every day in the week.—WILLIAM HINDS, *Otterspool*.

SEEDLING BRIAR VERSUS MANETTI STOCKS.

IN reply to your correspondent Mr. F. Boyes in your issue of the 9th inst., I must say that the Manetti stock is not a faithful ally of mine. My last beds were made up according to the instructions of "D., *Deal*," in your Journal, August 13th, 1874, and under the supervision of a very successful exhibitor who kindly travelled fifty miles to give me his advice and help, but the result is as stated in my letter—"thin blooms on cut-backs, and those on maidens ragged, rough, and unfit for exhibition." I find that I can get five fair blooms on the seedling Briar where I can only obtain one from a like number of plants on the Manetti. I have taken buds from these Roses on Manetti and inserted them in Briar stocks, and a marked improvement results, and the original good qualities of the Rose return.

Thinking that I must have erred in my Manetti management. I wrote to another friend hailing from Chatteris, a true lover of the Rose and one who can grow them too, and he replied, "I know not the cause of failure, but no one grows Roses long without discovering that not one in five hundred blooms is really fit for exhibition." I was perfectly astounded and almost made up my mind that the case was hopeless, and had I not tried the seedling Briar with far more success I should have hid my diminished head never more to appear in the exhibition tent. Is it to be wondered at, then, that I say the seedling Briar is far preferable to the Manetti? I do not say on all soils, for I know it is not so, but with me there is no comparison and I must give up the Manetti. It is time I discarded it, for I have tried it for twelve years and cannot succeed. If Mr. Boyes will give me any suggestions I shall be thankful, and will reserve a plot of ground for his favourite Manetti and give it a fair trial once more, but I confess I am not sanguine.

With regard to suckers I have no difficulty on either Briar or Manetti. I examine every plant before putting it into its place, and everything likely to produce a sucker is cut off.—W. H. J.

I DO not mean to cast any reflection on ardent Rose-growers, but there are persons always going in for something new, always looking out for new stocks which will grow Roses without any trouble. I should like to hear the experience of persons who have grown seedling Briars as long as the Manetti has been grown, as well as reports from growers of a year or two's standing. I contend that persons who love Roses and care for them will grow them well on one or other stock, or both side by side, or better still on no stock at all, but on their own roots. But the generality do not, will not, or have not, the means to trench or make Rose ground with its yearly accompaniment of mulch in the form of good cow manure and repeated liberal donations of liquid manure through the blooming season.

Would it be too much to ask the champion prizetakers in the Rose competitions of the last season which stocks they find best on their own particular soils? I mean amateur growers and men who have no bias in a monetary point of view. I

find on made land, or land where Roses have not been planted for years, that nearly any stock will succeed well for a while and grow away extravagantly well, but that is no test of the qualification of the stock. I recall the word "disreputable" on page 345 of the Journal if it hurts anyone's feelings, for I like the Manetti as a foster-parent better than any other, and do not wish that stock disparaged till a better is found.—W. C. A.

APONOGETON DISTACHYON.

I READ with much pleasure Mr. Abbey's remarks on this interesting plant at page 45, and I can confirm his statement as to its usefulness and its free-flowering properties. I have found its ally A. angustifolium if anything more free in the winter months. The flowers are not quite so large nor the foliage is not borne on quite such long stems as those of A. distachyon; consequently in small aquariums, &c., it has, in my opinion, a more pleasing effect. I have both species growing and blooming in No. 2 pots filled with water, in which plants that were potted in spring into 8-inch pots were placed. They flowered through the summer months, but, as Mr. Abbey says, they rest, as a rule, about a month or six weeks, according to the position of the aquarium. I find these plants flowered well in a shady position a longer period than where the sun was upon the tank or aquarium the whole of the day. Some of the plants are plunged in the aquarium, about 6 inches in depth of water covering the crowns. A. angustifolium flowers better if even in shallower water. I have also some plants in a greenhouse, and others in an intermediate house in the pots above stated are flowering profusely, but the flowers produced in the cooler temperature are by far the sweeter.

I find it easy to raise a stock of these plants for any purpose by tying a coarse piece of muslin round the flower stem, enclosing the decaying flower, and let it remain until the seeds drop out, then place them in pots, plunging the pots in water. They will very soon germinate, and the following season make flowering plants if properly cared for with regard to potting-off, &c. It is a plant much esteemed by my employer, and it is especially telling in specimen glasses.—J. PITHERS.

SUTTONS' MAGNUM BONUM POTATO.

LAST year I bought a few pounds of the above-named Potato, and planted them on 16th March 12 inches asunder in drills 4 feet apart. I had intended to plant Brussels Sprouts between the rows, but soon found out my mistake. The Potatoes grew so fast and strong that I quite expected they would be all tops and nothing at the roots. I allowed them to remain in the ground until the end of August, when I lifted a root to see if there really were any Potatoes to it, and was most agreeably surprised to find the quantity it produced. Knowing that it is a questionable policy to let Potatoes remain in the ground after the first week in September I dug them all up at that time, and I never had a finer crop of Potatoes from the same quantity of seed in the whole of my experience of gardening, which dates back upwards of thirty years.

My wife cooked three boilings of them and wished me to keep the remainder for seed, as in her opinion we had never tasted a better flavoured late Potato, and for my own part I think we could not reasonably expect to do so; in fact the flavour is as much a subject for remark as the yield.

This year I shall plant them in drills 4 feet apart. My garden, perhaps unlike "J. K.'s," is high and dry; reverse the position, and a soft wet Potato is the natural consequence. —THOS. C. JORDAN, *Leicester*.

I AM sorry to learn from "J. K." (page 43) that he has been unfortunate with this fine Potato. His employer ordered it on Mr. Penny's recommendation as being the best Potato he had ever eaten. This is the very opinion I have formed of it here. In quality I consider it second to none, and it produces an uncommonly heavy crop, quite free from disease. In fact, it is a Potato which I most conscientiously advise every person to grow; ours, although growing in good soil, did not produce half the length of stem as described by "J. K." I have always found that Potatoes with much top growth take much longer to ripen their tubers than short-stemmed varieties, and if "J. K." did not make allowance for this his Magnum Bonums may have been lifted before they were ripe, hence their soft bad quality. There is also more in cooking Potatoes than many allow for, and "soapy" Potatoes are oftener the result of bad cooking than of any defect in the character of the variety or its culture. Planted from the middle to the end of March, lifted in September, boiled until a fork passes freely through them, and allowed to stand on the hot plate in the saucepan for five minutes after the water has been drained from them, I am of opinion that Sutton's Magnum Bonum Potato will prove satisfactory alike in the garden and on the table.—A KITCHEN GARDENER.

I PLANTED a row of this Potato by the side of rows of Snowflake and Victoria, the rows being 2½ feet apart. The Snowflakes were all bad, the Victorias were very nearly all bad, while the Magnum Bonums were all sound, not a diseased tuber being seen. I have used some of them, and find them very soft, and the flavour inferior. I cannot therefore with my present experience recommend this variety for table use.—M. S., *Hull*.

"J. K." on page 43 wishes to know the qualities of Suttons' Magnum Bonum Potato. In my opinion no Potato can excel it for table purposes. When well cooked the Potatoes are like balls of flour. After growing it three years I consider it the best main-crop Potato in commerce—a good cropper, good keeper, and almost disease-proof. Out of between fifty and sixty varieties it was the best in every way that I lifted. The soil is light and gravelly. I plant about the middle of March, and have them all up by the middle of September.—G. MASTERS, *Weybridge*.

NOTES AND GLEANINGS.

THE members of Council of the ROYAL HORTICULTURAL SOCIETY who retire at the annual meeting, to be held on February 11th, are Messrs. W. Haughton, C. J. Freake, and Philip W. S. Miles; and the names of Fellows recommended by the Council to fill the above-mentioned ordinary vacancies are A. Grote, F.L.S., Lieut.-Col. W. T. Makins, M.P., and R. A. Aspinall.

—— WE are requested by Dr. Denny, Treasurer to the PELARGONIUM SOCIETY, to state that he considers the first or second week in February the best time for sowing the seed of the Pelargonium, and that he will be pleased to forward to the amateur members of the Society the offered packet on application.

—— THE sale of plants at the TOOTING NURSERIES last week was largely attended, and the prices realised tended to show that the demand for good plants is brisk notwithstanding the flatness of trade generally. The prices annexed mostly refer to moderate-sized specimens. Lælia Parishii, £3 10*s.*; Dendrochilum filiforme, £15 15*s.*; Oncidium sessile, £4 10*s.*; Odontoglossum hastilabium, £5; Vanda tricolor Dodgsoni, £5 5*s.*; Cymbidium eburneum, £3 15*s.* and £4 5*s.*; Odontoglossum luteo-purpureum, £3 3*s.*; Saccolabium guttatum, £4; Dendrobium primulinum giganteum, £5 10*s.*; Odontoglossum vexillarium, £10 10*s.*; Aërides Ellisii, £5 5*s.*; Oncidium crispum, £3 5*s.*; Arpophyllum giganteum, £5 5*s.*; Cypripedium villosum superbum, £5 5*s.*; Dendrobium Falconeri, £4 4*s.*; Bletia hyacinthina Standishii, £6 10*s.*; Cœlogyne cristata, £12; Aërides Schrœderi, £7; Vanda tricolor Rollissoni, £2 10*s.*; Cypripedium Sedeni, £4 10*s.*; Aërides affine superbum, £7; Cattleya Mossiæ aurantiaca, £5 10*s.*; Oncidium curtum, £5; Microlepia hirta cristata, £2 10*s.*; Dracæna Goldieana, £3; Anthurium Schertzerianum, £11 5*s.*; Lapageria rosea, £2 10*s.*; Lapageria alba, £4 10*s.*; Yucca filamentosa variegata, £5 10*s.*; Phalænopsis Schilleriana, £3; Dendrobium nobile Rollissoni, £3; Saccolabium ampullaceum moulmeinense, £3 5*s.*; Aërides quinquevulnerum, £4 8*s.* and £3 10*s.*; Saccolabium curvifolium aurantiacum, £3; Cymbidium Mastersi, £3 5*s.*; Cypripedium Schlimii, £5 5*s.*; Vanda teres, £4 4*s.*

—— WE are glad to learn that the LEEDS PROFESSIONAL GARDENERS' SOCIETY, which has been established twelve years, is in a very satisfactory state. After meeting all demands for sickness and death there has been a steady increase every year since the formation of the Society in 1867. The income for the past year has been £116 1*s.* 7*d.*, and the expenditure for the same period £98 1*s.* 1*d.*, leaving a balance in favour of the Society for 1878 of £23 0*s.* 6*d.*, which, added to the savings of the eleven previous years of £522 17*s.* 9*d.*, makes a total placed to the credit of the Society of £545 18*s.* 3*d.* The number of honorary members is fourteen, and financial members 121. The mean age of all its members is at the present time forty years. The rules provide for members who are sick and unable to follow their employment for the first

twenty-six weeks 10*s.* per week; during the remainder of such illness 5*s.* per week is paid. At the death of a member £10, and at the death of a member's wife £7 is paid, the members paying 1*s.* each at the death of a member and 6*d.* each at the death of a member's wife. The ordinary contribution of members is 3*d.* per week, the entrance fee varying with the age of proposed members. The Society is open to gardeners in all parts of England, there being no restrictions as to distance for members being enrolled. Mr. Sunley, Spring Bank, Headingley, is the Secretary of the Society.

—— At a meeting of the Horticultural Club held a the Club House, Arundel Street, W.C., on Tuesday the 14th inst., the following gentlemen were elected as the Committee for 1879—Herbert J. Adams, Hon. and Rev. J. T. Boscawen, William Bull, Captain Christy, Philip Crowley, James Cutbush, George Deal, Dr. Hogg, Rev. George Henslow, Lewis A. Killick, John Laing, W. A. Lindsay, John Lee, Dr. Masters, Thomas Moore, Horace K. Mayor, Charles Noble, Gen. Puckle, Charles Turner, A. C. Wheeler, B. S. Williams, C. P. Wheatstone, Maurice Young. We are glad to state that the Club is in a prosperous condition, and the arrangements for the comfort of the members most satisfactory.

—— The annual meeting of the Scottish Seed and Nursery Trade Association was held at the Waterloo Hotel, Edinburgh, on the 14th inst. The annual report, presented by the Secretary, Mr. Hunter, showed that there was a membership of forty-three firms, and that there was a balance due to the Association of £56 14*s.* 3*d.* The following gentlemen were elected office-bearers of the ensuing year:—Mr. David Syme, Chairman; Mr. John Downie, Vice-Chairman. Committee—Messrs. Crawford, Inch, Mackintosh, Dodds (Haddington), Palmer (Annan), Sadler (Glasgow), Anderson (Perth), James Welch (Edinburgh), Alexander Cross (Leith), R. B. Laird (Edinburgh), W. W. Johnston (Edinburgh). Treasurer and Secretary Mr. D. Hunter, S.S.C. Mr. David Syme, on being elected to the office of Chairman, speaking of the objects of that Association, said he believed what called it into existence was the prevalence of the adulteration of seeds of all kinds. At the time the Association was started he believed the evil was exaggerated, still there was no blinking the fact that adulteration of seeds was practised to a considerable extent both at home and abroad. They had formed themselves into a sort of moral police force, which had guarded the counrty from being inundated with seeds of a questionable description, as was formerly the case to a considerable extent. That was an object for which they deserved well of every member of the seed trade. It was more in the interests of their customers than it was for the benefit of nurserymen and seedsmen, as without good seeds they could not have good grass or Turnips, and without the latter they could not have either good beef or good mutton.

—— Among the Orchids now flowering in Messrs. Veitch's nursery at Chelsea is the remarkable Angræcum sesquipedale, the plant having twelve expanded flowers. In striking contrast the miniature A. Chailluanum is still in flower. The chastely beautiful Lælia anceps Dayanum is represented by a very fine variety combining purity with richness in a marked manner. The lovely L. albida is flowering in profusion; and of more commanding appearance are Odontoglossums Insleayi leopardinum, O. Halli, and Oncidium Forbesii. Many excellent varieties of Cattleya Skinneri and Cypripedium are also flowering. Almost equally noteworthy with the various plants in flower are the great numbers of seedling Orchids in various stages of development—some just appearing as thick as Mustard and Cress, others pricked off, and others, again, established in pots of different sizes, and all in a healthy thriving state.

—— A large meeting of the agriculturists in the Arbroath district was held at Arbroath on Saturday for the purpose of presenting Mr. John Nicoll, Cemetery Lodge, Arbroath, with a testimonial in recognition of his services to agriculture as the raiser of the Champion Potato. It may be mentioned that the seed of these Potatoes was sown by Mr. Nicoll in the spring of 1863. It was gathered from three sorts of Potatoes planted in his garden at Letham, Forfarshire, the previous year with a special view of hybridising for the purpose of procuring new sorts of Potatoes. The produce of the seedlings even the first year was remarkably fine, and, starting with a collection of upwards of one hundred sorts Mr. Nicoll continued to grow and test them for the three succeeding years, throwing aside the inferior sorts and retaining the most promising. At Martinmas, 1866, he removed to his present situation as Superintendent of the Arbroath Cemetery, when he gave to Mr. James Robertson, Newmill, Forfar, a selection of his best sorts, and, he continuing to grow and test them, the outcome has been the Champion. The presentation on Saturday, which was subscribed for by the farmers of the district principally, consisted of a gold watch, suitably inscribed, and a purse of sovereigns. Mr. Morgan, South Mains of Ethie, presided, and in making the presentation noticed the great services which Mr. Nicoll had rendered to agriculturists.—(*North British Agriculturist.*)

—— Writing to us on preventing edging tiles being shattered by frost, Mr. Wylam, The Elms, Crawley, states that a solution sold by the Indestructible Paint Company, Cannon Street, quite saved his tiles this winter.

—— "W. J. M." gives the following instructions for propagating Crotons in water:—"Take cuttings a few inches long of well-ripened young wood, plunge each cutting in a bottle of pure water in the bottom of which a small piece of charcoal has been placed, and properly secure the bottles in a bottom heat of 80° to 90°. Roots will be emitted in a fortnight, and the plants may be potted in 3-inch pots in three weeks. Plants thus rooted a few months ago are 12 inches high, beautifully coloured, and furnished down to the rims of the pots. Such plants are very valuable for decorative purposes."

—— We have received a set of those useful annuals issued by Messrs. Letts & Co., and known as "Letts's Diaries." They are of every size, and are adapted for every use; small enough for the waistcoat pocket or card case, and large enough for the study table or counting-house desk. Besides the mere blank sheets, which constitute the Diary proper, they all contain much useful information which is an almost daily requirement.

—— Mr. Huntley will be glad if some of our readers can give information respecting the Hybrid Perpetual Rose John Keynes. He desires to know when it was raised, and when sent out. It is described in Mr. W. Paul's catalogue as bright reddish scarlet shaded with maroon, bright, full, and very effective.

—— We are informed that Mr. J. C. Stevens of King Street, Covent Garden, has received instructions from Lady Dorothy Nevill to offer for sale by auction early in May the magnificent collection of plants which has been formed at Dangstein, and which for many years has been one of the extensive and valuable private collections in this country. Objects of leading interest will be the Orchids, Pitcher Plants, Filmy Ferns, Darlingtonias, and Sarracenias among the plants of low stature, while of those of more imposing growth are many valuable Palms and Tree Ferns. It is impossible in a mere announcement of this nature to give any idea of the contents of this garden, but we shall shortly give an account of what is to be found there, and we trust that though dispersed the fine specimens which are to be found at Dangstein will meet with owners who will cherish them and derive as much pleasure from them as their present one has done.

—— Referring to the note on paraffin as an insecticide (page 47), Mr. D. Thomson, Drumlanrig, states that last spring he applied paraffin at the rate of four wineglassfuls to four gallons of water to a houseful of Camellias, and not the slightest trace of injury to the plants has appeared to this day. He applies it at the same strength to Crotons, Dracænas, and all stove plants that require it, and also to Azaleas, &c., and it proves instant death to insects without injuring the plants. Mr. Thomson considers paraffin the cheapest, most effectual, and safest of any insecticide he ever tried when rightly applied—*i.e.*, well mixed with the water and properly syringed off. Last year for experiment he watered a scarlet Pelargonium with it at the same strength, and the plant never appeared to suffer in the least.

—— We have received other letters on the subject of injury being caused to small border plants by the gardener's foot. The substance of them is embodied in the following words, extracted from Mr. Froud's letter:—"A man who would thoughtlessly damage his employer's choice pets cannot be a real gardener, but one of those rough and ready men who, to earn their living, turn their hands to anything, learning half a trade but never a whole one." We are afraid there are many of such men who pass as gardeners, and we trust the remarks that have been published will induce them to be more careful in the discharge of their duties, when the object of "Cyril," who is an ardent lover of plants, will be attained.

—— Mr. William Bardney writes to us as follows on the

WEATHER, VEGETABLES, and THERMOMETERS:—"I quite agree with Mr. William Taylor on page 41. My plants are all killed of Veitch's Self-Protecting Broccoli. They were just beginning to turn in before the severe weather came upon them. The outer leaves of Osborn's Winter White are destroyed, while the hearts remain uninjured. Snow's Winter White is not injured at all. Veitch's Autumn Giant is every one killed that was not ready to cut before the frost commenced. All that were anything like ready at that time were taken up and laid in where they continue to come in, being well protected. Mr. Taylor is not the only one who has thermometers wrong. Out of twenty-two that I have here at the present time no two work together. I have compared them at different times and they register 2°, 3°, and 4° differently."

STAPHYLEA COLCHICA.

As a forcing shrub for decorative purposes in midwinter and early spring this little-known Staphylea promises to rank with Lilacs and Deutzias. It was introduced to the British public for the first time on the 14th inst. by Messrs. James Veitch & Sons, who submitted small flowering specimens to the Floral Committee of the Royal Horticultural Society, who recognised the value of the shrub by granting to it a first-class certificate.

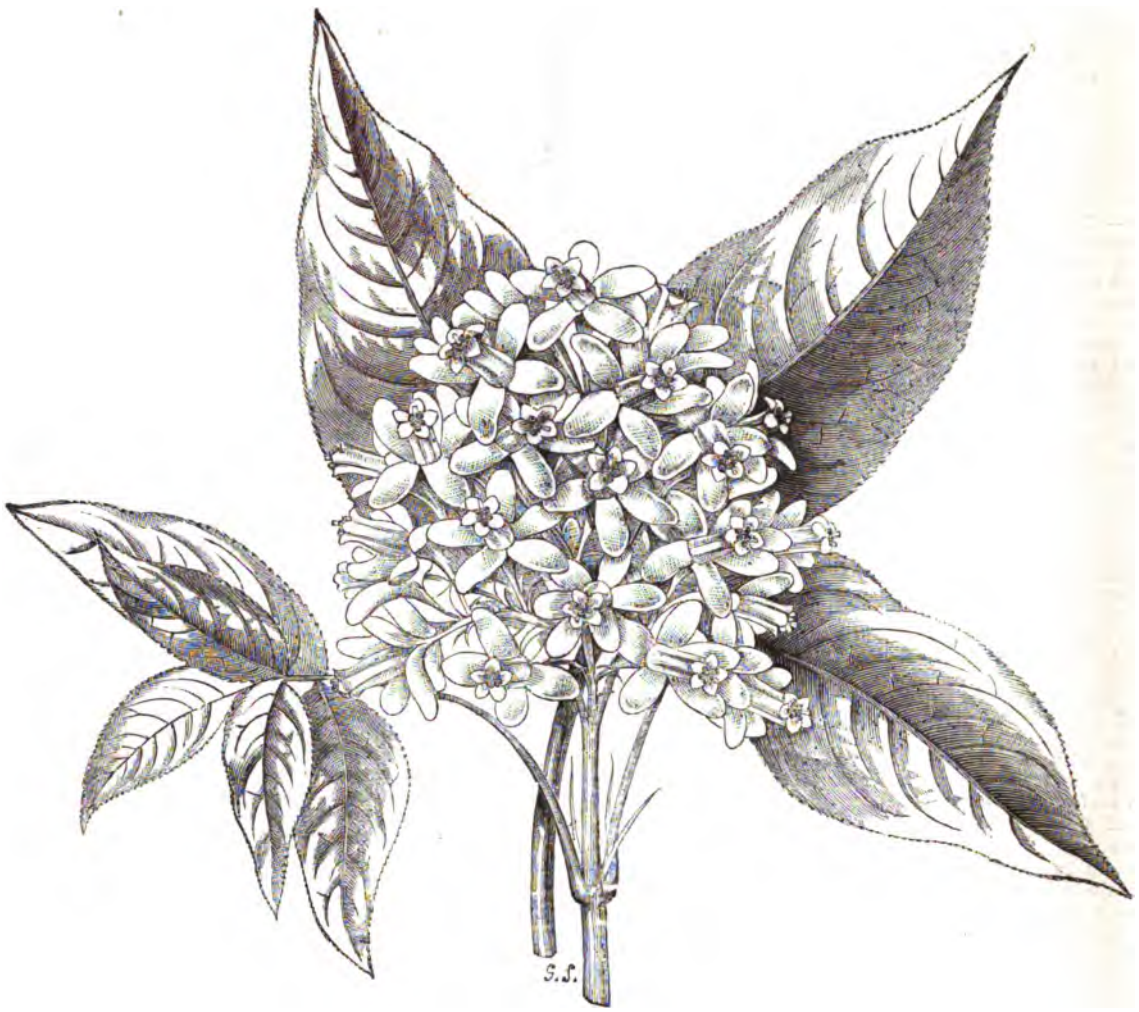


Fig. 8.—STAPHYLEA COLCHICA.

A striking feature of this Staphylea appears to be its extremely free-flowering character even when in a very small state. The examples referred to appeared to be recently rooted layers, for the plants, which were in 6-inch pots, did not exceed 18 inches high, each plant producing from four to six panicles of waxy white flowers, enhanced in beauty by fresh, pale green, glossy foliage. The flowers are produced at the extremities of short shoots. Every bud on well-ripened wood appears to produce a flowering shoot, and the shrubs are forced into flower even more quickly and with less heat than are Lilacs. The annexed engraving is a truthful representation of the flowers and foliage. The individual flowers are shown of their natural size, but many of the panicles are considerably larger and somewhat more drooping than in fig. 8.

This Staphylea as exhibited by Messrs. Veitch is quite distinct from anything else flowering at the same early period of the year. It is sure to become popular for conservatory decoration, and probably also for market purposes. It is a native of the north of Europe, and will no doubt prove hardy, as it is evidently of easy culture. We have much pleasure in directing attention to a forcing shrub so chastely ornamental, so distinct in appearance, and so promising.

REVIEW OF BOOK.

The Rosarian's Year-Book for 1879. Edited by the Rev. H. H. D'OMBRAIN. London: Bemrose & Sons.

THIS annual, the second that has been issued, is a great improvement upon its predecessor, and we congratulate Mr. D'Ombrain upon securing so many articles by writers who really know the subject of which they are treating. If the annual contained no other article than that by Mr. George Paul on "Too Much Alike Roses" it would be cheap at a shilling, but in fact it contains many others which are valuable. Mr. George Paul has given us a list of Roses which are

little less than duplicates of one another, a list so large as to startle the amateur, and to excite much comment if not opposition from those who have spent their lives among Roses. As many of our readers may not have seen the book we give the list referred to. "The following," says Mr. Paul, "I would with all deference to the opinion of other growers give as synonyms :—

"1, Maurice Bernardin, Exposition de Brie, and Ferdinand de Lesseps.
"2, Charles Lefebvre and Marguerite Brassac.
"3, Mdlle. Eugénie Verdier and Marie Finger.
"4, Reine du Midi and Mdlle. Alice Dureau.
"5, Madame Boutin and Christine Nilsson.
"6, Maréchal Vaillant and Avocat Duvivier.
"7, Mons. Boncenne and Baron de Bonstetten.
"8, Louise Peyronny and Lælia.
"9, Madame Clemence Joigneaux and La Souveraine.
"10, Prince Camille de Rohan and La Rosière.
"11, François Fontaine and Sénateur Vaisse.
"*Teas.*—12, Adam and President.
"13, Alba Rosea and Madame Bravy.
"14, Belle de Bordeaux and Gloire de Bordeaux.
"15, Elise Sauvage and L'Enfant Trouvé.
"16, Madame Denis and Madame Maurin.
"17, Niphetos and Mathilde.
"18, Fortune's Yellow and Beauty of Glazenwood."

Some readers may perhaps consider the list needlessly large, especially when it is remembered that Gloire de Bordeaux and Belle de Bordeaux are seldom if ever sent out as different Roses, nor Louise Peyronny and Lælia.

Besides this valuable list Mr. Paul gives an instructive table of Roses which have sprung from various heads of families, such as Alfred Colomb, Maurice Bernardin, and Sénateur Vaisse. We take this last-named Rose as a sample of the way this subject is treated. "Sénateur Vaisse family, with light green smooth wood and round flowers, including amongst others Madame Victor Verdier, Beauty of Waltham, Dupuy Jamain, Baron Hausman, John Stuart Mill."

Mr. Paul also gives us a piece of news which we fancy will awaken sad feelings in most rosarians' hearts, and that is that Cheshunt Hybrid is sterile. "The Hybrid Teas," he says, "if they can be made to seed (so far as regards Cheshunt Hybrid it is sterile) should develope a new race of fine autumnal climbing Roses with red flowers—a great desideratum." Mr. Paul modestly concludes a valuable article by saying that this paper was begun with no intention of reaching its present limits. We can only say we wish Mr. George Paul would try and weary the Rose public a little more than he does.

Mr. Mawley, one of the Hon. Secretaries of the National Rose Society, contributes a lengthy and valuable summary of the weather of the last Rose year. He commences his year with August, 1877, and tells us in detail what sort of weather and temperature we had each month, and in some cases each week. He divides his year into the Ripening, the Sleeping, the Awakening, the Blossoming, which words also form the principal decoration of the cover of the annual. The other side of the cover will no doubt, the same as it did last year, provoke much adverse comment.

The Rev. Alan Cheales contributes two articles : one is a reprint of the paper on Rose-judging, read before a meeting of the General Committee of the National Rose Society, and published at the time in our columns; and the other is an amusing autobiography of the Hybrid Tea Cheshunt Hybrid. The Rose herself addresses her admirers, and very conceited she appears to be, and evidently prides herself on her public appearance, but gadding about is not conducive to her health ; and in spite of her conviction that she wo'n't be turned out of the Tea Rose box, there are not wanting signs that she will find it difficult to retain her place there.

One of the pleasantest if not most erudite articles in the annual is "How I Came to Grow Roses," by "A Duffer." This begins uncommonly well, but the interest is not kept up, and, to use a sporting phrase, the "Duffer" tires very much, and is dead beat as he reaches the winning post. His description of the visit of his fair cousin to his garden at a time when he was quite ignorant of all that concerns Roses is so amusing that we are almost tempted to quote it, but space forbids.

The Rev. W. F. Radclyffe repeats once more his well-known conviction that it is useless to grow Roses that have not a vigorous constitution. He tells us that Emilie Hausburgh ought to be called Emilie Humbug ; that Marie Baumann is a drooping beauty ; while, on the other hand, Madame Chirard, Etienne Dubois, and Madame Nachury are much to be commended. We live and learn, but it is certainly news to us that François Michelon and Marie Baumann are unworthy of cultivation because of their moderate growth.

Mr. Joseph Hinton gives us a *résumé* of the Rose election of 1878, and an "Ex-Exhibitor" sings the praise of Roses which are not exhibited. He solaces himself and those who do not exhibit with much the same comfort that Mr. Beachey expressed in our columns some few months since, and tells us that the garden Rose can never cause us heartburning, and that if not so good it is always faithful, always true.

The "Year-Book" concludes with a brief epitome of the two great shows held last year by the National Rose Society at the Crystal Palace and Manchester. At the former we learn 13,000 visitors were present, at the latter 10,000. Before these lines appear in print the General Committee of this Society will have met and settled upon the schedule and other grave matters ; and rosarians will cease to think of the Rose year that has gone as they turn their longing eyes to the glorious time that is daily gradually nearer—to the feasts of Roses both at home and abroad, and pay court to their queen on the exhibition board and on our trees at home.

THE LATE FROSTS IN IRELAND.

Most of the gardens in this locality have more or less of a display during the spring months. For many past years this has been a much easier task than it is likely to be in the coming year, principally owing to the extreme severity of the past two months. Although, as mentioned in your columns, the thermometer fell here immediately preceding Christmas day to 14° Fahr., and on the 11th inst. to 18°, I see that in Scotland, Yorkshire, and even in Kent it has fallen much lower. The less severe frosts in Ireland may be attributed to our more insular position and closer proximity to the action of the Gulf stream—in fact we have a much more equable temperature than England, but with also much greater humidity. Our garden calculations must be made accordingly. However, as pointed out by Mr. Campbell in your last issue, one very desirable result will be, we may expect fewer slugs and garden pests. I have taken a few notes in the ornamental grounds in front of the institution to which I am attached, principally in reference to our shrubs and perennials, now that comparatively mild weather has set in, that may have some interest, having in view the late exceptional season, and with an eye to the future.

Auriculas.—The Alpines being more hardy do not appear to have suffered, except having lost an additional number of their outer leaves from the excessive moisture. They are again commencing growth. The show varieties which were kept on shelves with perfect ventilation until the beginning of November, and then removed to a cooling room, are now moving and appear in excellent health.

Echeverias and Sedums.—With one or two exceptions all that were left outside have perished : not so last year.

Calla æthiopica.—I left a few young plants outside as an experiment, to test an opinion I saw in one of your contemporaries, that they live through the severest winters. These were covered with short straw and in a box, but the roots are even gone.

Dahlias.—These I covered with fine coal ash and short litter, but at the present stage I cannot say what ravages the frost has made ; at all events they appear sound so far. Last year the tubers appeared much the better, and easier and earlier started for having remained in the ground, hardly one being lost.

Wallflowers, Single and Double.—These were a fine display last year. A specimen of the latter sent to your office you noted as "novel and very fine." The single look fairly though the under leaves hang much, which will give them a shanky appearance, and the older plants need not be expected to furnish underneath.

Stocks.—I was calculating on a fine display of Bromptons from seed supplied me by Messrs. Daniels, Norwich ; but from present appearances those expectations seem hopeless. Some specimens of Intermediate are hardier. I am afraid I manured the former rather too heavily. They grew luxuriantly, and were more likely to be an easy prey to frost. Protection would have been difficult even had I been able to anticipate the severe frost, as they were upwards of 2 feet high. I am afraid some of my friends who have had in previous years splendid displays of Queen and Emperor Stocks here will not be more fortunate.

Tritomas.—I have cut down the foliage beneath the surface, and so far they appear quite dead. Last year the foliage remained perennial. Possibly the roots are still alive.

Scabious.—These remained the last in bloom, and furnished cut flowers down to the beginning of last month, but have suffered from the extreme frost too. The foliage now seems quite crisped, and without any immediate sign of life. No doubt in all similar circumstances the more judicious plan would be not to depend on the old perennials, but sow seed.

Antirrhinums.—These have surprised me by their power of resisting frost. Except the young late top growths they seem little the worse from its severity. The roots seem again in full action. The plants I am referring to were sown and grown in the open border.

Sweet Williams.—With the exception of two newer varieties these were treated as the Snapdragons; both seedlings and cuttings, except a slight nipping to the younger leaves and shoots, seem little injured.

Hollyhocks. — Even the seedlings do not seem the least injured, those that were covered with stable litter and those that were not, seeming equally unscathed. The double prize varieties seem to be equally hardy; but perhaps these being planted on a south border protected from the north may to some extent explain the immunity. Immunity wholly from frost no place had.

Centaureas, Pinks, Carnations, and Picotees grown from pipings out of doors remain unaffected. So of Polyanthus and double Hepaticas. Violas in lines and recently top-dressed seem all the better. Veronicas of all sorts seem almost dead. Even Sweet Bays and young Laurels are browned. Periwinkles and Myrtles equally so. Lobelia that lived out last year went long since, but Mimulus is growing luxuriantly again. Nothing less affected than Pentstemons.—W. J. M., *Clonmel.*

THERMOMETERS.

YOUR correspondent Mr. W. Taylor gives a melancholy picture of the state of the thermometers with which he is acquainted. I fear that there are several of your readers who will agree with him, but they do not put the saddle on the right horse. He and they who suffer with him get into trouble, not from the badness of the thermometers, but from their purchasing patterns which will not bear a railway journey, or from their own want of knowledge of the management of good instruments when they have them. I have not time just now to write full hints upon the subject, but I will mention a few things to be avoided.

Never buy a Six's thermometer; that is the pattern which has two vertical tubes, one containing the index for extreme heat, the other for extreme cold. They are pretty and handy, but they are wretched travellers and never to be trusted.

Never buy a maximum thermometer with a steel index which has to be adjusted by a magnet; it may last a twelve-month, but more probably the index will stick fast in six months.

By far the best thermometer for registering low temperatures is that known as Rutherford's spirit minimum, which may be had at any price from 3*s.* 6*d.* (Negretti's horticultural minimum) to £1 1*s.* If properly placed this thermometer will not go wrong (I have had one in daily use since 1857), but if it is exposed to hot sun the spirit vaporises and is condensed at the top of the tube; then of course the thermometer reads too low by as many degrees as there are degrees of condensed spirit at the top of the tube. I will not quarrel with your correspondent if he call this a fault in the thermometer, he may if he likes. It does not happen in thermometers well placed. It is a fault of principle and not of construction; it is one perfectly well known, and therefore watched for by careful men; and finally it is easily cured by giving the thermometer a violent swing bulb downwards, and then standing it bulb downwards to let the spirit settle on to the column.

Your correspondent says he has never found two thermometers which would agree "within two or three degrees for a week when the weather is severe." Very probably, but here again I doubt if it is altogether the fault of the thermometers. Those who have never tried have no idea how difficult it is to compare thermometers. There are some of them so sensitive that unless read very quickly the mere proximity of the observer will send them up a couple of degrees, even though he obeys orders and "don't breathe upon them." Again, some people seem to think that the temperature in all parts of a large garden should be alike, but this is far from being the case. I suppose your correspondent is joking when he asks if there is anything particular in the air here (he does not say where) which is injurious to thermometers? All thermometers being hermetically sealed he could not seriously ask such a question.

Lastly, Mr. Taylor asks if there is any guarantee that Kew verified thermometers will work correctly for six months. I reply that a Negretti maximum, or an ordinary mercurial, thermometer cannot be made to go wrong, and that Rutherford's minimum thermometers rarely go wrong if fairly treated, and when they do can be put right in the very simple mode I have stated.—G. J. SYMONS, *Camden Square, N.W.*

LIKE Mr. William Taylor I have noticed in this and other journals many reports of low outdoor temperatures, and have also, like himself, read most of them with some feelings of distrust. The two principal reasons why I have done so are the following:

1st, Because for all purposes of comparison with reliable observations taken in other places, the temperatures quoted could be but of little value unless the thermometers which indicated them happened to be suspended in an open position 4 feet above the ground, and were entirely or almost entirely shielded from the sky.

2nd, Because minimum thermometers unless properly hung are very apt to get out of order and then read too low.

The best position for a minimum thermometer which is intended to indicate the lowest temperature of the air at night is in a "Stevenson" or similar thermometer screen 4 feet above grass, the screen itself being as far distant from trees, walls, or buildings as the situation will admit.

A minimum thermometer which is required to show the greatest cold on grass should be an unmounted one, and should be placed on a lawn in such a position that it can have the most extensive view of the sky obtainable. It should be supported at each end by a forked stick in such a way as to allow the lower side of the bulb just to touch the blades of short grass. If snow has fallen the thermometer should be allowed to rest lightly upon its surface.

We now come to the most important consideration of all. It is this: A minimum thermometer when in use should be always suspended with the bulb half an inch lower than its opposite end.

In order to ascertain whether a spirit thermometer is working correctly place it and a good mercurial thermometer in a bucketful of cold water, and then in twenty minutes or half an hour's time take the readings of both thermometers. If there is good reason to doubt the correctness of the spirit thermometer swing it smartly in the air several times at arm's length with the bulb downwards, and afterwards hang it up for a time in a vertical position with the bulb still downwards. By this means the small portion of spirit which has escaped into the upper part of the stem will in most cases have been made to rejoin the main column. If, however, the reading still appears doubtful, apply the heat of a spirit lamp or candle flame very gradually to the end of the thermometer farthest from the bulb. A very slight degree of heat will be found necessary to reunite the disengaged portion of spirit.

Mr. Taylor appears to think that minimum thermometers generally are not trustworthy in their indications of low temperatures. I have certainly had but little experience in the use of cheap thermometers of this kind, but am of opinion that on further consideration of the subject he will find that the differences to which he refers are not so much caused by any defects in the thermometers themselves as by the variety of influences to which they in their different positions are subjected on those cold, calm, and clear nights when our lowest temperatures are usually registered. For instance, of two thermometers, otherwise similarly placed, the one nearer the ground will indicate the lower temperature. In the same way a thermometer in the upper part of a garden will generally read higher at night than one at a lower elevation. So will the thermometer, other circumstances being the same, which has the more complete view of the heavens give lower readings than one less exposed, and so on. In fact, on such nights in a large garden almost any number of apparently discordant temperatures might be obtained.

In conclusion I would venture to point out that as thermometers are usually placed in gardens the only statements respecting extreme cold which are likely to prove of any real interest or value will be those worded somewhat as follows:—

"My minimum thermometer, which has never been moved from its present position for the past seven years, and the readings of which have been occasionally compared with those of a mercurial thermometer, registered during the night of the 24th December last a temperature which was 10° lower than any it has hitherto indicated."—E. M., *Croydon.*

NOTES ON VILLA AND SUBURBAN GARDENING.

With very few exceptions the weather this month so far has been adverse to all outdoor gardening operations. Besides the frosts from 2 to 3 inches of rain have also fallen, so that in wet and heavy soils some time must elapse before the ground can be in a dry and workable condition. As soon as the weather becomes more open and settled no opportunity must be lost in making sowings of Peas and Broad Beans, and where there is any fear of Cabbage, Cauliflower, or Lettuce plants running short, a small sowing of each should be made in gentle heat, the plants to be pricked out when the weather becomes milder.

Spring bedding will be uneven and patchy this year, many of the plants being killed by the bitter winds and frost together, and fortunate are those who have an additional supply of plants in the reserve garden for an emergency of this kind. Make good all blanks, and give the beds a good stirring with a Dutch hoe on the first warm day. All borders and shrubberies not already dug over should at once be completed, and if necessary the shrubs may be thinned and pruned. Many hedges of Laurel and Privet made a late growth, and are now out of the general line of evenness: merely remove with a sharp knife these irregularities, and make all neat and compact.

Climbers.—There is no more convenient time than the present for pruning plants of this nature. Some of them are free ramblers, especially the common Virginian Creeper and the graceful and pendulous Wistaria, and in time they become too heavy, breaking away from their supports. Such rampant climbers being now leafless can be easily thinned and regulated, and secured at pleasure. Clematis Jackmani is the better for being cut well back. It breaks stronger, and the blooms are larger and more profuse than when it is not so treated. Prune and nail Roses on walls, and all other climbers with the exception of Ivy; this we prefer leaving a month or six weeks later, otherwise it will have to remain bare of foliage longer than if the clipping is deferred until the commencement of the growing season. Most of the more delicate climbers will be benefited by having a little manure dug in around their roots.

If it is necessary and desirable to freshen up mixed herbaceous borders great care should be taken not to injure the Crocus, Snowdrop, Daffodil, and other bulbs which are pushing their way above the earth's crust. Rose trees should also be looked over, and any that are injured by the frost or by any other cause should be replaced by healthy plants. We fear that some of the standard Teas will be injured. Roses on their own roots will be safe, for if the tops are injured fresh growths are sure to issue from beneath the surface of the ground.

In the amateur's greenhouse there is much that requires to be done to prepare for the summer beauty of the flower garden. Geraniums crowded together in cutting pots or in boxes ought now to be separated and potted into single pots: a size known as 60's is the most useful and convenient. After potting a few degrees more warmth and moisture will help to establish the plants. Cuttings of Lobelias, Coleuses, and all other soft-wooded bedding plants may now be increased in large quantities as required. Remove Cinerarias, Cyclamens, and Primulas to the conservatory as they come into bloom. With the exception of these and a few Camellias and winter Heaths conservatories have been rather dull since the Chrysanthemums were over. Bulbs of all kinds—Hyacinths, Tulips, Crocuses, Narcissi, &c.—will now be plentiful, and may be forced into bloom with much less trouble now than before the turn of the year, as also may all kinds of shrubs, such as Deutzias, Rhododendrons, Kalmias, and Azaleas both the Indian and Ghent varieties. Lilacs are when well bloomed exceedingly showy, and remain a long time in beauty. The best plants imported for forcing are not more than 18 inches or 2 feet in height. Spiræas and Lily of the Valley are also indispensable. The singly-selected imported crowns are far superior to those sold in clusters. They are potted from eight to a dozen crowns in a pot, and plunged for some time in cocoa-nut fibre, and are best forced with a covering of the same material placed over them. They apparently throw up stronger foliage and bloom for being covered up for a time, besides the important advantage of the foliage growing at the same time as the flower stalks. Dielytra spectabilis is a most useful and easily forced old herbaceous plant, and deserves more extensive cultivation than it now receives; its pendant jewel-like blooms are both graceful and elegant. Other greenhouse plants, such as Acacias, Coronillas, and Cytisuses, will come into flower naturally, so that there need be no lack of flowers during the early spring months.

Roses grown in pots should be pruned now and have the remaining shoots bent downwards, with ties to cause the lowermost buds to break, and to keep the habit of the plant dwarf and stocky. Plants already started into growth should be carefully watched for the maggot and well syringed on fine days. Do not subject them to too high a temperature for the present, but as soon as the flower buds are formed the temperature may be raised from 5° to 10°. The finest Roses are to be had on plants left to bloom in a natural manner; but Rose buds are always cherished, therefore to have them early the plants must be pruned and started correspondingly early. A steady temperature of 55° to 60° suits them admirably.

WORK FOR THE WEEK.

KITCHEN GARDEN.

It will probably be found that the injurious effects of the late severe weather are too speedily estimated. The moisture resulting of the thaw often proves more disastrous, particularly to gardens located in low ground or valleys, than the frost itself. Already Broccoli plants in such positions are only fit to be removed to the rubbish heap. When the frost is gone and the ground tolerably dry the winter or late autumn plantings of Lettuce will require attention, as they are liable to be disturbed at the roots by the action of frost on the ground, and therefore the soil should be pressed firmly around such plants as have been loosened. All crops require looking over for the removing of all decayed leaves; remove also the damaged parts from Globe Artichokes, and if a sprinkling of wood ashes is placed round the plants it will be an advantage. Every particle of woody matter should be taken care of, such as prunings, &c., and as they accumulate be burned, the ashes being stored away in a dry place in readiness for dusting such crops as Peas, &c., that are liable to the attacks of predatory vermin. If a sufficient number of autumn-sown Cabbage plants are not already planted out take the earliest favourable opportunity of planting others; this planting will provide tender heads when those from the earlier plants are over. Potatoes, where pitted or placed in quantity together, will require to be opened and spread out as thinly as room permits. This applies more particularly to the early kinds, which, when allowed to sprout in the pits, suffer the destruction of the first growth, which seriously affects the crop. Onions if kept in a close room or cellar often commence growing and do not keep well, therefore remove them to any open shed facing north, where from the cold and dryness they will keep until a late period. Any that are beginning to grow should be removed for immediate use, and any very small bulbs in that condition may be planted a few inches apart, and will afford an early supply of bulbs for soups, &c.

Forcing Department.—Exhausted beds of fermenting materials employed for forcing Asparagus will, if turned over and have an admixture of fresh sweetened material, be available for fresh roots, which introduce as required so as to maintain the necessary supply of this best of all forced vegetables. But the produce is often poor in quality through not having had sufficient air; open the ventilators, therefore, whenever the external air can be safely admitted to the pits or frames. Continue to make beds and to plant Potatoes in proportion to the probable demand. Plants of Tomatoes now strong enough to be potted off should be placed in small pots, and when the very early Celery plants can be handled prick them off singly in small pots filled with rich soil. We use manure reduced to soil, placing the plants in a warm pit as close to the glass as possible. Capsicums if required early may also be sown, also Basil, Sweet Marjoram, &c. Roots of Mint should now be taken up and be placed in pots or boxes of rich soil, and placed in a warm house, also roots of Tarragon; and if there is scarcity of Chervil sow in boxes and place near the glass in gentle heat. Small saladings sow once or twice a week as the demand dictates. Carrots, Lettuces, and Cauliflowers sown in frames will require air abundantly until the second leaves are developed, or they will become drawn, and in that state are worthless. Radishes also must have abundant ventilation whenever a favourable opportunity offers, and a successional sowing should be made in frames over fermenting beds. Introduce to the Mushroom house fresh roots of Rhubarb, Seakale, and Chicory as required to maintain the succession, sowing French Beans in pots at fortnightly intervals. Slugs are very fond of young Carrots, Lettuces, &c.; dust the plants, therefore, with quicklime or dry wood ashes.

HARDY FRUIT GARDEN.

Autumn or early winter planting of fruit trees having been neglected, no time should be lost in preparing the ground for spring planting. If the ground has not been previously trenched it will expedite the planting to make holes 6 feet in diameter taking out the top spit round the side of the hole, and trenching the bottom to a depth of 18 inches; but if this be gravel remove it and replace with fresh loam, or if heavy clay a portion should be removed and a depth of 6 to 9 inches of rubble be placed in the bottom so as to form an efficient drainage for the trees, without which it is hopeless to expect young trees to continue in a healthy state. It is of little use placing drainage at the bottom of the holes without thorough drainage of the ground generally, as without that the holes in retentive soils only form receptacles for holding water about the roots. Most hardy fruit trees may be

successfully planted during the next six weeks or later, care being taken not to expose the roots to the air more than can be helped. In cold or late soils it is questionable whether spring is not preferable to late autumn for planting. In planting fruit trees lift them carefully, keep the roots from the air as short a time as possible, plant shallow, especially in heavy soils, secure the trees against winds, and mulch over the roots with rather littery manure. Complete as soon as practicable the pruning of bush and other descriptions of fruit trees in the open ground, also the pruning and nailing or tying of wall trees; and if there were attacks of insects last year it will be well to dress the trees with an insecticide. One pound of soft soap to half a gallon each of water and tobacco juice is all that need be used for aphis or red spider, but if there be any scale a quarter of a pint of spirits of turpentine may be added, and if mildew prevail add flowers of sulphur, applying the composition with a brush, taking care not to dislocate the buds.

FRUIT HOUSES.

Vines.—The early house will require careful attention now. Remove all loose and duplicate bunches, thinning the berries so soon as they are nicely formed. If there is no fermenting material in the house charge the evaporation troughs with guano water, 1 lb. to twenty gallons of water; but where results are of more consequence than appearance, a portion of the fermenting materials may be removed, and the whole of the internal border surfaced with thoroughly sweetened dung from the stables, which should be turned over several times before it is introduced, or the ammonia will be too strong for the as yet tender foliage, which may, however, be obviated by admitting a little air by the top lights to allow any excess of steam to pass off, as it will in a day or two. The inside border will need before being covered with the sweetened stable litter to have a good watering with tepid water, not exceeding 90°. This, with the leaves in an active state, will incite root-action, and the berries will swell away kindly. Avoid cold currents of air, also steam arising from highly heated pipes, both being prolific of rust. The heat of fermenting material upon the outside border must not be allowed to decline, but should be renewed as required.

Figs.—The trees started in November for affording ripe Figs early in May will be throwing out fresh roots plentifully, the bottom heat being kept steady at 70° to 75°. Bring up the fermenting materials to the rims of the pots if not already done; and instead of allowing the roots to come over the top of pots to ramble unchecked into the fermenting materials, place pieces of rich turf of good size round the rims of the pots with a view of keeping the roots near home and to induce sturdier growth, as when the roots ramble through the leaves in the early stages of growth the wood partakes more or less of the character of the roots; besides, with the roots near home the top-dressings are more readily available as food for the trees. Maintain a good moisture in the atmosphere by syringing twice a day and damping as may be required in bright weather, taking advantage of every gleam of sunshine for running up the temperature to 80°, admitting a little air at 70°, increasing it with the temperature, closing at 75°, and if the temperature rise to 80° from sun heat it will be an advantage. See that there is no lack of water at the roots. The drainage being good there is little to dread from giving Figs too much water, many crops being lost by the soil being kept too dry. The temperature by day in dull weather should be kept at 65°, and 60° at night when the external air is cold, but 5° higher when the weather is mild. Disbudding will need to be attended to as the growth advances, and gross shoots stopped, but the finest Figs are borne upon extensions. The trees in the house started early in the month and planted out in inside borders will, if the borders have had repeated waterings at a temperature of 85° so as to bring them into a thoroughly moist state, be starting into growth, and may have the night temperature increased to 55°, 60° to 65° by day from fire heat, with an advance from sun heat and free ventilation to 70° or even 75°. Syringe twice a day as before advised, and see that the borders are thoroughly moistened. If the trees are weak a thorough soaking with liquid manure, not too strong, at a temperature of 85° to 90° will assist the growth.

Cucumbers.—Seed being sown early in the month do not be in a hurry in potting the seedlings, but earth them up and keep them near the glass, so as to have short stems, maintaining the temperature at 70° to 75°. If the seeds were sown in frames linings to the bed will be necessary, with mats over the lights at night. If, however, the material for making up the bed for raising the seedlings is only now in a fit state from turning over and mixing with leaves so as to induce a sweet regular heat, a site for a bed should be chosen with full southern aspect, and having shelter to the north, as that of a hedge or wall. If the ground be rather higher where the bed is to be formed than the surrounding ground, all the better. Beat the dung and leaves well down with a fork as the work proceeds, making the bed about 5 feet high at back and 4 feet 6 inches in front, which will allow for settling, as it will do, about a third. A few Pea sticks placed across and along the bed at intervals not only prevent overheating but admit of the heat from the lining being conveyed to the interior of the bed. For early work we have frames with double sides formed by placing in an inner lining of half-inch boards 9 inches less in depth at the back and 6 inches in front than the box, nailing strips of wood an inch broad on the inside of the box, and then the boards, which form an inch cavity all around the inside of the box, and thus top heat is furnished. In about a week the heat will be up. Level the surface of the bed, replace the frame, and put in sufficient sweetened dung to raise the inside to within 4 inches of the top of the inner frame or cavity, placing sawdust, dry leaf soil, or spent tan on the dung for plunging the pots in. For raising the plants 3-inch pots are half filled with light rich loam, placing one seed in the centre of each pot, and just covering with fine soil, the soil being in a moist state so that no water is required for the germination of the seed. Space is thus left in the pots for top-dressing the plants, which is preferable to potting them off. A square of glass placed over the pots will hasten the germination, but it must be removed as soon as the plants appear. The plants from a sowing made early next month in the manner described will be ready for planting in March, and will afford a supply of fruit nearly as early as those from seed sown early in January.

Melons.—Add a little soil as a top-dressing as the plants grow, keeping them near the glass to prevent drawing. Keep a sharp look-out for slugs. A ring of soil or lime placed round the plants will generally preserve them, but means should be employed to entrap the slugs. For frame culture seed should be sown early next month. The bed as described for raising Cucumbers is suitable for Melons, and should be made forthwith, unless one be made for Cucumbers, which will answer the same purpose for raising Melons. Soil should be placed under cover, so as to become dried preparatory to forming it into ridges in the Melon house. Good loam, rather strong than light, is suitable for Melons; and if it has been laid up in ridges so as to reduce the turf it will be in a fitting state for the purpose.

Cherry House.—Beyond the necessary attention in watering trees in pots and syringing the house, with attention to ventilation as before advised, there will be little needed at present, the temperature being kept at 40° at night, 45° to 50° by day by artificial means, ventilating at 50°, and allowing a rise of 10° to 15° from sun heat with full ventilation, closing at 50°.

Orchard House.—This structure should now be cleaned, the woodwork and glass being well washed, and if required painted. The trees, if they have been placed outdoors, should be introduced and assigned the position they are to occupy during the growing season. In some instances the pots are placed upon borders of rich loam, but this has a tendency to diminish the feeders in the pots which root through into the border, and the surface dressings are of less value. If the trees have been retained in the house, and the pots surrounded and surfaced with dry litter to prevent injury from frost, the trees may now be placed in position. If water is required afford it, as keeping the roots too dry exhausts the stored-up sap, causing enfeebled bud-growth and the casting of the buds of Peaches and Nectarines. Any pruning required should be done, confining it to thinning out the weak growths and crowded shoots, and shortening irregular growths so as to secure the symmetry of the trees. The branches should then be dressed with an insecticide applied carefully with a brush, 1 lb. of soft soap to half a gallon each of tobacco juice and rain water, adding a quarter of a pint spirits of turpentine if there be any scale, and thickening with flowers of sulphur to a cream for mildew. If the trees were not top-dressed in autumn it should be done without delay, removing only a moderate portion of the surface soil, replacing by rich compost (turfy loam and thoroughly decayed manure) in equal parts, with a sprinkling of half-inch bones, ramming the compost well down. In mild weather and during bright sunshine even in frosty weather open the ventilators to lower the temperature, as the cooler the trees are kept the less is the danger of injury to the blossom later on by the premature excitement of the buds at this season.

TRADE CATALOGUES RECEIVED.

William Paul & Son, Waltham Cross, Herts.—*Catalogue of Vegetable, Flower, and Agricultural Seeds.*

Dick Radclyffe & Co., 129, High Holborn, London.—*Catalogue of Vegetable and Flower Seeds.*

Little & Ballantyne, Carlisle.—*Spring Catalogue and Seed List.*

Osborn & Sons, Fulham.—*Catalogue of Kitchen Garden and Flower Seeds.*

James Cocker & Sons, 82, Union Street, Aberdeen.—*Catalogue of Vegetable and Flower Seeds.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects,

and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (*Rev. E. C.*).—The most comprehensive book on in and outdoor gardening is Thompson's "Gardeners' Assistant," published by Blackie and Son.

ROSES IN POTS (*T. K.*).—Your plants worked on the seedling Briar will, if strong and well managed, flower satisfactorily in pots at the time you require them.

ORCHIDS NOT THRIVING (*Rosa*).—Your plants are no doubt rendered unhealthy by the escape of dry heat from the flue. We should remove the boards, keep the gravel that covers the flue moist, and arrange the plants on the gravel. With otherwise good attention and a suitable temperature, which is given from time to time in "Work for the Week," your plants will then improve. They cannot flourish when surrounded by dry heated air. Possibly the Alocasias damped-off because the temperature was too low for them.

PARAFFIN (*W. B. W.*).—The price of paraffin varies considerably. We had no difficulty in obtaining a supply of the quality alluded to by "E. H.," on page 26, at 1*s.* per gallon in London during the summer. It is, perhaps, like coals, dearer now. We will forward your letter (with one also from "F. J. B.") to "E. H." if he will favour us with his postal address.

HOUSE TAX (*H. A. B. S.*).—We are sorry we cannot advise you on this subject. You had better consult a solicitor.

DENDROBIUM NOBILE (*G. S.*).—The growths sent indicate that your plant is in good condition and that you have treated it correctly. Allow the old growths (No. 1), to remain, for although they will not flower they will support the plant and may produce young growths from near the top, which when they have formed roots may be taken off and potted. No. 2 is a flowering growth, and the buds on it are flower buds. The plant must be kept moist now or the buds will not swell. A night temperature of 60° with the usual increase of heat during the day, and a moderately moist genial atmosphere, will be suitable until the plant is in flower, when it may be removed to a cooler and drier house such as a warm conservatory. No. 3 is a stout young growth that will flower next winter or early spring. After the plants have flowered their after-growth should be promoted by moisture and moderate heat, subsequently permitting the plants to go to rest gradually by placing them in a cooler house and giving them less water. A greenhouse temperature in the autumn is sufficient, allowing them abundance of air with sun, and keeping them moderately dry until flower buds are visible on the stems.

INDEX (*H. W.*).—You can have the index you require by sending two stamps to the publisher with your address, at the same time naming the volume to which the index required refers.

BEGONIA STEM EATEN (*Miss J. C., St. Austell*).—The plants have been attacked by the larvæ of the furrowed weevil, Otiorhynchus sulcatus, a beetle which seems to have been doing much harm this winter. The only remedy at present is the removal and destruction by burning of the infected plants.

READING COVERS (*G. E. C.*).—We do not issue them.

CALADIUMS (*Veritas*).—New varieties are raised from seed, but we are not aware that seed is saved in sufficiently large quantities to be offered for sale in catalogues. Mr. Wills's address is Onslow Crescent, South Kensington, London, S.W.

PALMS IN COVENT GARDEN (*X. Y. Z.*).—Many varieties of Palms are sold in Covent Garden, amongst them Latania borbonica, Arecas Bauerii, rubra and lutescens, Chamærops Fortunei and excelsa, Corypha australis, Livistonia humilis, Phœnix dactylifera, and Seaforthia elegans, as well as the more costly and elegant Cocos Weddelliana, Dæmonorops in variety, and Kentias.

CULTURE OF TUBEROUS-ROOTED BEGONIAS (*H. P.*).—The tubers should not have been kept dry, as they, like Gloxinias, are liable to have their vitality impaired and not infrequently destroyed by the drying process. Afford them a little water, or, what is better, place the pots upon a moist bottom, from which they will derive sufficient moisture. In March turn the plants out of the pots, removing all the old soil except any that may be matted closely together by roots, and return them to the same size of pot, covering the tubers about half an inch deep, employing a compost of turfy loam with a third of leaf soil or thoroughly decayed manure. Place the pots in a gentle hotbed and keep the soil moist. When the plants are making fresh growths and the pots are filled with roots, shift them into pots a size larger, and when well established remove the plants to a light airy situation in the greenhouse, shifting them into still larger pots if necessary, but not after flowering commences.

STONE FOR ROCKWORK (*Idem*).—Gypsum is not a suitable material, nor do we know the "motley stone—red and white," to which you allude. Red sandstone rock answers admirably, being good for the growth of plants, and ornamental. For particulars write to Messrs. Walker & Co., Farnborough Station, Hants.

CULTURE OF LILIUMS (*Chester*).—As you grow and flower the Lilium well the first year, we can only conclude that you water them too freely during or after flowering, so as to cause the decay of the bulbs. The bulbs require to be potted so low in the pots as to admit of a top-dressing, which should be applied when the stems show roots at their base, and the plants should be kept in a light airy situation in a greenhouse or other cool structure. Apply water as required until the plants commence flowering, avoiding at all times a soddened state of the soil; after flowering only moderate supplies of water should be given. When the foliage changes the plants should be potted and kept in a pit or house safe from frost, and the soil moist.

BIENNIALS AND PERENNIALS FOR FLOWERING THE FIRST YEAR (*Idem*).—Antirrhinum, *Begonia tuberous-rooted, *Calceolaria herbaceous, *Cineraria, *Cuphea, *Cyclamen persicum vars., Delphinium vars., Dianthus chinensis vars., Digitalis, Œnothera macrocarpa, Gaillardia picta vars., Pansy vars., *Heliotropium vars., Hollyhock, *Humea elegans, *Mimulus, *Petunia, *Primula sinensis vars., Trachelium cœruleum and var. alba, Verbena and Viola. Those marked with a star are suitable for the greenhouse.

ORNAMENTAL GRASSES (*Idem*).—Sow the seed in a cold frame in March, and prick off the seedlings in 6-inch pots, placing half a dozen plants in each pot. Protect them from heavy rains and wind until the close of May, when, being well hardened off, they may be planted out or kept in pots for the greenhouse. You may also sow in the open ground in April. Perennial kinds should be potted off singly, and when well established planted out where they are to remain. Loamy soil is all that is required, only just covering the seed with fine soil and keeping it moist.

IVIES FOR PILLARS IN GREENHOUSE (*C. J. D.*).—Covering the pillars with bark will harbour insects, and be liable to speedy decay. Cork would be better. Hedera marginata argentea, H. salma elegantissima, H. tricolor variegata, and H. rhomboidea obovata variegata are suitable Ivies. Clematises Excelsior, Mrs. G. M. Innes, Thomas Tennent, and Lawsoniana. We should prefer Tea-scented Roses; or if you require evergreens, such climbers as Habrothamnus Newelli, Lapageria rosea, Rhynchospermum jasminoides, and Jasminum gracile would suit.

DUTCH GARDENING (*K. E. M.*).—The "best authority" we can name is a volume entitled "New Principles of Gardening," by Batty Langley, published in 1728. There is no modern work on the Dutch style of laying out gardens.

GRAPES STONELESS (*A. P.*).—The Grape sent is the Black Morocco, which is one of the worst setters of all Grapes, owing to glutinous globules often forming on the stigmas of the flowers. The old-fashioned mode of gently drawing the hand down the bunches when they are in flower, and when the atmosphere of the house is dry, has the effect of removing the globules, dispersing the pollen, causing it to reach the stigmas, and aiding the berries to set. A drier atmosphere is essential for setting this Grape than is necessary for most other varieties.

PIPPIN AND APPLE (*Horatio Piggot*).—Pippin signifies a variety of an Apple raised from seed in contradistinction to one multiplied by grafting. All stocks of Apples raised from seed are Pippins.

SEEDLING APPLE (*J. Woolright*).—We do not recognise your Apple as a named variety. If you can establish its being a seedling still unnamed and not in general cultivation, it would be worth while growing it, for it has all the characteristics of a valuable market fruit.

WINTER CHERRY (*G. J. S.*)—The plant to which you refer is Physalis Alkekengi. It is hardy, and thrives in ordinary garden soil, turfy loam suiting it admirably. We do not know whether birds devour the berries, but in Germany, Switzerland, and Spain they are served at the table as dessert.

TREE BARK INJURED BY RABBITS (*J. J. A.*) — Dress the bark with assafœtida, or, if you have only a few trees, bind some hay or straw bands around the stems.

POULTRY MANURE (*J. W. T.*)—It is good for all crops, and may be applied at the rate of about 4 ozs. per square yard, or 10 cwt. per acre, more or less, according to the fertility of the soil.

PRIMULAS (*W. E.*).—The Primulas are good. It is doubtful whether the white variety tinted with green would be considered sufficiently distinct by the Floral Committee of the Royal Horticultural Society to merit any special mark of approval.

NAMES OF PLANTS (*A. R. F.*).—1, Too much crushed for identification. It appears to be a Mesembryanthemum, possibly tenuifolium; 2, Polystichum angulare proliferum; 3, Adiantum setulosum; 4, A. Capillus-Veneris. (*H. W.*).—1, Pteris tremula; 2, Asplenium flaccidum; 3, Scolopendrium vulgare var. cristatum; 4, Onychium japonicum; 5, Asplenium pubescens; 6, Cyrtomium falcatum; 7, Selaginella Wildenovii; 8, Specimen much crushed. We think Pyrethrum frutescens.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

MANAGEMENT OF A BREEDING FLOCK OF DOWN SHEEP.

(*Continued from page 54.*)

FROM the same source that we obtained the information referred to on page 54 relating to the produce of lambs, we also get the average rate of mortality of ewes during seven months of winter and spring, which is stated at 4.85 per cent.; the average mortality of ewe tegs or hoggets is found to be 2.75 per cent. for the same period, so that we may fairly estimate the average death rate of the flock without reference to ages at about 5.25 per cent. for the whole year, and this corresponds very closely with our own experience in the management of a breeding flock of down sheep in the chalk hill districts.

We now approach a part of our subject which is no less interesting than it is important to the managers of home farms—viz., the course of cropping the land. We intend to adhere to the six hundred acre farm wherewith to illustrate the rotation of crops, bearing in mind that we have a large number of sheep to provide for both in summer and winter. Let us take first the cropping of the arable vale land, consisting of one hundred acres. This we recommend to be cropped under a four-course rotation of twenty-five acres each; the first year to be wheat, the second year to be roots, the third year to be Lent corn, and the fourth year to be clover, grass, &c. In the second year half the root land will be seeded in the previous autumn with rye, winter oats, vetches, trifolium, &c., to be fed off on the land, and followed by a crop of Swedes or hybrid turnips; the other half of the root land to be autumn-fallowed and prepared for a crop of mangold, and sown

as early as possible in the spring. The twenty-five acres of clover and grass land should be varied in cropping to make the clover crop more certain, one half being clover and grass cut twice for hay, &c., the other half being trefoil and Italian rye grass, to be fed off and followed by turnips and cabbage, this cropping to be reversed or alternated in the next rotation. Thus we get half the vale arable land to yield corn, and the other half green crops, fodder, and root crops as food for stock.

We will now refer to the arable hill or light land, comprising three hundred acres. This we consider will be best managed under a five-course system—thus, sixty acres to be saintfoin to lay for four years, sixty acres to be roots preceded by ten acres part of rye, ten acres trifolium, and ten acres mixed vetches and winter oats, to be followed by Swedes, hybrid turnips, and common turnips, thirty acres to be autumn-fallowed for half mangold and half Swedes, sixty acres to be Lent corn, seeded for the next rotation—being sixty acres grass, thirty acres with red clover and rye grass to be cut for hay, &c., and thirty acres with early trefoil, clover, and Italian rye grass, to be fed off with sheep, and sown with early turnips to be fed off. These seedings to be reversed in the next rotation, the last crop in the rotation being sixty acres of wheat, thirty acres of which will be sown after turnips, and thirty acres out of lea folded with sheep and ploughed early. The sixty acres of saintfoin will only lay four years and will then fall into the rotation, being replaced by sixty acres of saintfoin seeded in the wheat in the spring; but the wheat land which it is proposed to seed with saintfoin should be all sown to turnips, rape, cabbage, or mustard in part, so that the whole may be after a fallow crop; this will insure the saintfoin seed taking well after the wheat, and oftentimes it takes better than when seeded in the Lent corn. The sixty acres of saintfoin land coming up after laying four years will be prepared as follows for a root lain as soon as the crop of saintfoin hay in the last year is cleared, the whole sixty acres to be rafter-ploughed, scarified, and cleaned, thirty acres of which will be seeded with part rye, part trifolium, and part with mixed vetches and winter oats; the other thirty acres to be fallowed for roots precisely in the same way as above stated when the root preparations follow the wheat crop, and thus the rotation will be again complete after breaking up the old saintfoin lea, and after seeding sixty acres more saintfoin in the wheat. In this way the objection commonly taken against saintfoin being sown too often is removed as it will in this scheme of cropping be a long way apart. We have thought it necessary to state the rotations in full, and it will be seen that a full lain of corn for such a soil is provided for, as well as an abundant supply of fodder, roots, and grass for a full stock of breeding ewes at all seasons of the year. There are various other systems of cropping a farm where a breeding flock is kept, especially where no water meadows are available. We cannot now, however, refer to them, as we propose at a future time to furnish in these columns information referring to the cropping of different soils under varying circumstances, and under separate headings. We have omitted all reference to the keep, &c., required for horses or dairy cows upon the farmed six hundred acres, but it will be seen that there will be abundant produce for both, as the twenty acres of vale pasture and part of the water meadow produce will be especially available and within easy distance of the home farm buildings, for in the greater part of the hill districts the homesteads, &c., are situated in the valleys.

After having shown the means whereby we may be enabled to feed a large flock of breeding ewes we must now take up the question of maintaining the flock in health and condition, so that it may prove a source of profit to the home farm proprietor. Our remarks in the Journal dated February 7th, 1878, page 116, referring to down ewes and lambs, were intended chiefly to show the best mode of feeding, &c., so that both ewes and lambs may be sold fat together, and to which we must refer the reader for information on the various points—including the lambing of the ewes—connected with this subject up to the time that the lambs are ready to enter with the ewes upon feeding in the open field upon roots, hay, &c., as the observations there made will hold good for a flock of breeding ewes upon the hill farms; but after the lambs have become strong enough to follow the ewes from field to field the management becomes a very different matter, inasmuch that instead of being fed both ewes and lambs at full head with the best of artificial foods it is seldom that our stock flocks receive little or nothing beyond the produce of the farm, such as roots, hay, grass, and green crops of various kinds at the different periods of the year. The first food usually given is a fold of common turnips, which the ewes are required to eat off the ground, with some good saintfoin hay; and to learn the lambs to eat they are allowed to run forward through the lamb gate amongst the turnip greens, which they are soon induced to eat; care should, however, be taken to prevent them going forward too early in the mornings if hoar frost is upon the turnip leaves. The finest and best-made field hay should also be given in cages, and any portion not consumed by the next feeding time should be removed and given to the ewes. The trefoil and Italian rye grass hay is the best for young lambs, and it should be cut and made into hay very young. It will then contain the greatest feeding value, so essential to young lambs which at first eat so small a quantity. After the white turnips are consumed the Swedes come in for use in the same way. After the Swedes begin to run short the water meadows will afford good keep about the end of March or early in April, and after feeding in the meadows during the day the sheep should return early in the afternoon to the Swedes for the night, and receive their bait of hay in the folds as before stated. After the water meadow grass is finished the rye will be fit, and used in the same way as the meadow grass in conjunction with the Swedes. When the Swedes are finished mangold may be given to some extent in the folds of rye, unless the trefoil and Italian rye grass is fit to feed, which generally will be about the first week in May, in which case they will have a fold of it daily, returning to the rye at night, or when that is gone the trifolium; but when that crop is coming into flower it should be cut up and placed in cages like hay, the unconsumed portion is then easily removed, and the cultivation for the next crop of roots can proceed without let or hindrance. In the same way the mixed crop of oats and vetches are used, and whenever the stock of food of any sort runs short the mangold, which should always be stored as a provision in case of need, comes in handy at this time of the year, and particularly is it valuable in the hot weather when the other food is comparatively dry. The use of mangold, containing so much water as it does, goes far to prevent the necessity of driving the sheep to drink at ponds, as in the old custom before the use of mangold was fully appreciated.

The time will have now arrived for weaning the lambs. Both ewe lambs and wether lambs also must be weaned, which is best done about midsummer, and they should be retained in these fields for food where they had lately been, the ewes being removed out of sight and hearing of the lambs. The ewes will then go to the down pasture at daytime, and be folded close at night-time upon the land intended for the next wheat crop. After the vetches are gone, either early rape or turnip and the after-growth of saintfoin will be a change for them to feed on before going to close fold in the evening, but on no account to feed in the water meadows in the autumn. After a week or ten days the lambs having been fed together may be separated, the wether lambs being allowed a little cake or bean meal mixed with cut mangold to get them into saleable condition and to put a gloss upon their wool, so much esteemed by the buyers at the fairs where they are generally sold from the middle of July to the month of October, varying according to the keep at home or other circumstances. Soon after the lambs are weaned the ewes must be shorn and carefully washed, the manager being always present to see that each sheep takes its proper turn in being released from the water, as some animals suffer severely if they are in the water too long, and are often lost through want of care. From this time the ewes will go to the down pasture, or saintfoin, or clover lay during the day, and into turnip, rape, or cabbage at night-time. This will bring them into condition for breeding, and the rams may be turned out with them about two to each hundred of ewes. The time for doing this is a matter of convenience and often of custom on certain farms; and ranges from the 1st of August to the 1st of October, the west-country down ewes always being earlier by a month than the Hants or Sussex downs. After the ewes have become pregnant they require the most careful management. They often have rape, but we prefer the thousand-headed cabbage or the white heart cabbage, also having lumps of rock salt available throughout the year in the fields—in fact, grass of some kind during the day, and field roots at night in the smallest quantities, with hay or prepared straw, is the safest food. They should never go upon turnips except from sheer necessity. In selecting rams care should be taken to obtain animals calculated to maintain the purity of the stock we wish to rear, because upon this matter depends the future character of the flock. It is desirable also soon after or about Michaelmas to carefully weed out and sell any of the ewe tegs which are weakly, and not showing the style and growth which we desire, and in place of them purchase some picked stylish ewes from the autumn sales. The off-going or full-mouthed ewes may be sold at the same time as the wether lambs, and like them receive extra food a short time before being offered for sale.

WORK ON THE HOME FARM.

Horse Labour is now at the lowest ebb, owing to the changeable weather. For a week or more we have severe frost, and suddenly the scene is changed to a thaw with heavy rains. Under such circumstances no fixed idea can be carried out, except day by day orders. The laying-out of manure or compost on the clover seeds or pasture land has now been well nigh finished, and should have been spread as fast as laid out day by day, in order that when the thaw and rains arrive the manure may be washed into the land with equal effect throughout, instead of being allowed to remain in heaps in the field, acting injuriously by overdressing the land under the heaps and insufficiently manuring the remainder of the land when spread. It is in many cases almost impossible to find profitable labour for the horses in consequence of many farmers doing as little as possible extra work or beyond the usual routine,

yet if the various work which we have urged as expedient and profitable is carried out there need be very little leisure for the horses. We have shown the advantage of the use to which earth may be applied for the absorption of manure under varying circumstances upon the farm, therefore whenever nothing more pressing occurs the carting of earth to heap as a store for future use may be continued throughout the winter. We must here take the occasion to remark that this is a system not admitted as worth the labour by many farmers, who fall back upon their former practice and ignore the advantage of any new system without taking the trouble to calculate the advantage or disadvantage to be obtained by a departure from their former modes of proceeding in connection with manure and the means of saving and retaining it. We had an instance a few years ago, when having let a farm whereon the cart horses had been kept upon earth floors instead of the usual pitching of stones. The new tenant occupied the farm for eight years and never removed the earth floor; the consequence was that his horses were unhealthy, and he lost the full advantage of the absorption of urine in the stables. When we remonstrated with him upon the bad policy of not changing the earth where cleanliness is required, he replied that it would not pay for the labour; we, however, asked him why he removed the dung from the farmyard and various cattle pens. Because he required it for use, was his reply. We assured him that the removal and renewal of the earth floors under horses and all kinds of well-fed animals would pay better than the removal of any ordinary manure, because earth when saturated with urine certainly contained nearly double the amount of manure per load than dung obtained by straw litter, besides the better health of the animals when lying upon earth floors. It is, however, a most discouraging fact that the fashions and prejudices in farming prevent in a great degree those improvements which are often so evident and so easily proved to be advantageous. In some instances we have known the best of buildings entirely perverted and rendered comparatively useless by not being used for the purposes for which they were designed.

Hand Labour will still be employed in spreading manure and chalk upon the land, also in paring the banks and borders, as well as cleaning out ditches, plashing live fences, planting white thorns for the fences, dividing fields and meadows, cutting hay and straw into chaff for use at the homesteads as the weather prevents threshing corn at present, so that the chaff and hulls arising from fresh-threshed corn not being at hand must be supplied by the chaff-cutter, especially for horses. The shepherds now will be busy with the lambing in the southern and home counties, and when it is considered that the fatting sheep also require his care and attention sufficient assistance should be allowed him to carry out the various duties. The judicious arrangement of the labour power of the farm is a most important point, and unless it is fairly apportioned, and shepherds or other men are required to do more than they can attend to in a proper way, the money is either lost or inadvisedly saved, for we contend that the wages of labour when judiciously set out is the best and most profitable outlay upon the home farm. There is much lameness amongst sheep at the present time, and particularly it applies to fatting sheep. As fast as any sheep fall lame they should be taken from the flock and put into a well-littered yard and shed, or what is better a barn mow, and when the feet are properly dressed with the black paste, for which we gave a recipe not long since, they will soon get well, being kept in the dry floor of the mow, and may return to the flock in the open field; but we object to the lame sheep remaining with the sound ones, for they not only spread the infection, but the act of daily disturbing the flock to dress the feet of the infected animals prevents the flock from lying quietly and making that proof which good feeding ought to afford.

THE PERISTERONIC SOCIETY'S SHOW.

This Society held its annual Show at the Crystal Palace on Tuesday and Wednesday in last week. The birds were, as usual, shown in the fine cages of the Society in the tropical department. We cannot say that they all looked as well as in some former years; this terrible winter has been as trying to them as to the human race. The meeting is always a particularly pleasant one; there is no formal competition, no judges are appointed, and no prizes given. The members of the Society show each other and the world superb collections of birds, such as can nowhere else be seen together, and compare notes in friendly chat.

We shall follow the good custom of the Society, and avoid making odious comparisons beyond relating the particular beauties and merits of the strains of the various exhibitors. Beginning from the left as we entered the building, first came *Pouters*, first among these Captain Norman Hill's grand Black-pied cock and hen, a mother and son, one of the most beautiful pairs we ever saw. The same gentleman showed Pouters of all colours. The other exhibitors of the breed were Mr. D. Combe and Mr. Gresham, who showed some grand Reds, Yellows, Blacks, and Whites.

Fantails came next, a cage of six Whites sent by Mr. O. E. Cresswell, among them several cup-winners; the strain much combines the Scotch carriage with the English tail. Captain N. Hill sent two interesting pairs to illustrate the difference of the two types; in one a pair of large White flat-tailed English birds, in the other a pair of excessively nervous Scotch Saddle-backs, one a Red and one a Black, which could really hardly stand for its "motion."

Tumblers followed, filling a whole row of large cages. Mr. Merck, Mr. Jayne, and Mr. Dupree showed Almonds; the latter gentleman Kites and Splashes too. Mr. Murphy Almonds, Balds, and a lovely lot of Black Mottles.

Barbs were very good. Mr. Hedley's, of course, remarkable; among them the champion Black, which his owner considers the best Barb he ever had. Mr. Flicker, Mr. Pratt, and Mr. Pyne sent many of the same variety.

Owls.—First came whiskered Blues and powdered Silvers from Mr. Schweitzer, then Silvers and powdered Blues from Mr. Markell; a cage of cocks and one of hens from Mr. Van Senden, and a cage from Mr. Esquilant. The collections were all large, and a side view of them, catching all at once, was most beautiful. They struck us generally as being excellent in colour, but not equal in head properties to the winners at first-rate open shows.

Jacobins were numerous too. Mr. Easten sent Reds and Yellows with large fine hoods; Mr. Bull the same colours; Mr. Schweitzer the same again, very rich in colour, and Black and White as well; Mr. Betty Reds and Yellows, and Mr. Heritage all three colours. Blues were alone absent.

Turbits.—First in order came Mr. Cresswell's three cages of Reds, Yellows, and Blacks, all small and all well frilled; then Blues and Silvers from Mr. Herbert; then Blues and Yellows from Mr. Stevenson, the latter rather large but very rich in colour. Blues and Blacks from Mr. Thirkell followed. A few *Magpies* came from Mr. Stevenson and Mr. Herbert. *Homers* were there too from Mr. Lenny, Mr. Theobald, and Mr. Tegetmeier, who showed his wonderful performers which flew from Rome to Brussels. A few Short-faced Antwerps came from Mr. Flicker's loft.

Carriers were very numerous. Their exhibitors were Mr. Jones, Mr. Keeler, Mr. Ford, Mr. Hedley, and Mr. Pyne; the latter gentleman sent some curious Mottles and good Whites; Mr. Heritage, Mr. Pratt, and Mr. Gillham showed Blues, Mr. Feltham Mr. Cucksey, Mr. Square, and Mr. Buskin Blacks.

Some cages of less known varieties followed—a pair of Bronze Archangels from Mr. Cresswell, "Ancients and Moderns" from Mr. Neff, the former like muffed Tumblers, the latter mostly Runt-like in form; four huge Runts from Mr. Price, and some interesting Indian Birds from Mr. Tegetmeier, who always seems to have something new and curious to show his brother fanciers.

Dragoons, as usual, were in force—Whites from Mr. Poland came first, good and not too Carrier-like; Yellows and Reds from Mr. Sargent and Mr. Leith; Blues from Mr. Flanagan; four very stylish Blues from Mr. Tegetmeier; Blues from Mr. Thomas, and Yellows and Blues from Mr. Howard, all excellent. The visitors to the Show were very numerous.

VARIETIES.

We should be glad to hear the results of any attempt at hatching and rearing chickens which our readers have made during this exceptionally long and severe winter.

—— The promptitude of the officials of the late Dorchester Show is highly commendable. An exhibitor observes:—"We live a good deal over one hundred miles from Dorchester, and though the judging only took place on Wednesday in last week we received a catalogue with printed awards by the first post on Thursday, and a cheque for our prize money on Friday morning."

—— Crushed bones and oystershells are very good to keep poultry in health and to supply lime for making shell in laying hens. During summer insects and various seeds supply much eggshell matter, but as soon as this is stopped make good the loss by supplying the above liberally in trays that can be reached at any time. The mixture is not only good for eggshell, but it assists digestion and the healthiness of the flock.—(*Poultry Bulletin.*)

—— A German paper remarks that there is not only a great difference in the nourishing qualities of different green foods, but that these vary with the age of the plants; thus, in clover and lucerne, the most important substances or principles decrease in quantity as the plants grow older. This materially alters the nourishing properties, and the feeder has to guard against this deterioration by changing the food; a little dry food—chopped hay—is good. There is an advantage in dry food which cannot be found in green fodder; there is no change in the nourishing qualities of the former, though it is true the amount of nourishing qualities is materially diminished through the drying process.

—— Feed pigs regularly, as abundance of food will not make up for the loss arising from irregular feeding. Pigs know their

feeding times very accurately, and nothing retards their feeding so much as allowing them to be anxiously awaiting their anticipated regular meal. Mix a little salt with their food; keep the troughs and animals clean, their sties and beds dry and warm. Vary the bill of fare; in doing so, however, be careful not to lower the general standard of the diet. Pigs do much better when their food is varied. Stores, brood sows, and fattening hogs should all be fed separately. Two pigs will fatten better in company than separately, and all the animals do better on cooked than raw food.—(*American Cultivator.*)

DOUBLE SWARMS.

THE policy of uniting swarms is a point in the management of bees that we have never discussed publicly. It sometimes happens that two swarms, issuing at the same time from two hives standing together, unite and settle as one swarm, and occasionally some bee-masters hive the two swarms together with a view of having an extra strong hive for filling supers the first season, or for a strong stock hive the season following. Two swarms thus united are doubtless better in every sense, because larger, than a single swarm. As one queen only is kept and necessary in a united swarm, there is a loss sustained in the destruction of the other if she is the fertilised queen of a first swarm. If one of the queens were caught and returned to one of the stock hives the loss sustained would be less, for the life of a fertile valuable bee would be saved without injury to the swarm. Large swarms placed in moderately sized hives soon fill them, and afterwards do a great amount of super work. A nice point in the art of supering is to give the bees just room enough below for brood, and to let as much honey as possible be stored above.

By paying special attention to large or double swarms, in fine seasons crystal palaces of honeycomb or exhibition glasses of great size may be obtained. Indeed no limits can be placed to the gathering powers of early swarms in such seasons, and swarm hives in being supered are not so apt to send off colonies as non-swarming stocks.

But in regular and general management of an apiary we disapprove of double swarms, for two first swarms hived and worked separately in favourable honey years yield greater results than when worked as one swarm. The best swarms in Aberdeenshire last season ranged in weight between 100 lbs. and 130 lbs. One gentleman there put two swarms united into a hive of combs, and yet this hive reached 118 lbs. only. The swarms probably were not large. In the case of the Carluke swarms, we saw that Mr. James Somerville had three swarms from one hive, the first of which rose to 112 lbs., the second to 94 lbs., the third to 90 lbs. The second and third swarms were, of course, about ten days later than the first, and yet separately their joint weight was 184 lbs. This, however, appears to me to be an exceptional case, for when second swarms reach the weight of 90 lbs. each, the first swarms from the same hives go up to about 150 lbs. In good seasons first swarms are generally about one-third heavier than second swarms. In bad seasons it is otherwise. The facts of our experience go to support the practice of hiving swarms separately for early work and great results.

In the case of Mr. Rennie's hive which yielded two swarms the results are rather interesting, for the first swarm yielded two virgin swarms. We do not take virgin swarms nor advise others to take them, but in Mr. Rennie's case two were taken from one hive. The mother or dowager hive rose in weight to 80 lbs., her first swarm to 70 lbs., and her second to 53 lbs. The two virgin swarms which came from the dowager's first rose in weight to 148 lbs. Thus we have a united total of 218 lbs. from Mr. Rennie's first swarm of last year. We have never known a single or a united swarm go beyond 170 lbs. For marked results, or a special end, it may be well to unite two early swarms, but for profit we think they should be hived and kept separate.—A. PETTIGREW.

OUR LETTER BOX.

POULTRY-KEEPING (*B. S. M. J.*).—If you want eggs only we recommend one of the non-sitting breeds — Spanish, Crève-Cœurs, Hamburghs, and Houdans. If you wish for birds to fulfil all the duties of fowls you must choose from Brahmas, Cochins, Game and Dorkings. For an extensive run and a rickyard we advise Dorkings. If you want a hardy breed, good layers at all times, good sitters and good mothers, rearing their chickens in all weathers and seasons, we advise Brahmas. Cochins are almost as good. Game are hardy and good layers. They are sometimes spiteful mothers. If you mean to sell chickens in a market we advise Dorkings, but if you do not mean to give yourself much trouble in the matter try Brahmas. If you decide for eggs we advise Houdans or Crève-Cœurs. The latter lay eggs as large as Spanish, and the birds are not so delicate when moulting. The Houdans are hardy birds and good layers, but their eggs are not so large as Spanish or Crève-Cœurs. Genuine Redcaps are not to be had out of Yorkshire. The last pure birds we saw were at Sheffield. They are a local and a fancy breed.

FOWLS EATING FEATHERS (*Rus in Urbe*).—We never knew cocks to be pecked by the hens as early as this, nor have we ever suffered from this nuisance in Hamburghs. We have never tried paraffin, and should be afraid to do so. Remove the cock from the hens until his plumage has grown again. By that time the surface of the earth will, we hope, be more favourable for the food of the birds than it is now. At present it provides absolutely nothing. The fowls feel the lack of something they get under other circumstances, and can find nothing but feathers as a substitute.

KERRY CATTLE (*Idem*).—It would be very unadvisable to cross Kerries which are so distinct, with any other breeds. Although Kerry bulls are not procurable in your district bull calves of various ages may be had from Sussex.

PRESERVING EGGS (*F. J. R.*).—We have only tried one system for preserving eggs. We are now eating for breakfast those that were laid down last July. They should be laid down as soon as possible after they are laid. If the same day, so much the better. Take a bread pan, mix lime and water enough in quantity and of such consistence as to allow the eggs to be stuck into it and to retain their position. When the bottom is full pour on enough lime to cover the eggs, and then begin another layer. Repeat this till the vessel is full. They do not require to be dry, but they must be protected from the air.

FOWLS DYING (*S. F. H.*).—The condition of liver you describe would be caused by variations of temperature and insufficient or improper feeding. You have not stated how you feed them. The grass run, if yours is like ours, has produced nothing in the way of food for many weeks. The birds are then entirely dependent on that which you give by hand. Give them barleymeal or ground oats slaked with water in the morning, the same in the evening. The mid-day meal may be maize, barley, or house scraps. Their roosting place should be free from draughts, and if possible protected from the east wind.

AGE OF FOWLS FOR LAYING (*W. L.*). — We should expect Brahmas hatched in March to begin laying in September, but they sometimes lay earlier. We have known Brahmas and Cochins lay when four months old. They become hens after they have been broody. Hens commence laying in February and March. As a rule the older the hens are the later they begin to lay. The foregoing must be taken subject to food, condition, and weather. Fowls require more and better feeding during hard frosts and cutting east winds than they do in open weather. Chickens well fed and cared for lay earlier than those that live hard. They also attain better growth.

ADDRESS (*S. S. B.*).—If you write to the Secretary of the Poultry Society, St. Helier's, Jersey, he would probably supply you with the address you require.

METEOROLOGICAL OBSERVATIONS,
CAMDEN SQUARE, LONDON.
Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. Jan.	Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 15	29.665	39.3	38.6	S.W.	33.3	45.7	38.2	50.2	33.1	0.010
Th. 16	29.931	31.2	31.2	N.E.	33.2	42.2	28.2	47.6	25.8	—
Fri. 17	30.208	31.3	31.3	E.	33.3	35.7	28.3	39.8	24.7	0.180
Sat. 18	29.979	33.7	33.4	N.E.	33.6	36.0	31.0	35.6	28.6	0.395
Sun. 19	30.316	33.5	32.2	S.E.	33.5	35.8	31.6	47.8	31.2	—
Mo. 20	30.262	29.9	29.1	S.E.	33.6	31.5	27.7	34.0	24.3	—
Tu. 21	29.950	28.7	28.0	N.	33.5	30.5	27.1	36.7	26.8	—
Means	30.044	32.5	32.0		33.4	36.8	30.3	41.7	27.8	0.585

REMARKS.

15th.—Fine morning, overcast by 10 A.M., and showery during part of the day; fine starlight evening.
16th.—Fine day, at times very bright and sunny; starlight night.
17th.—Very foggy great part of the day, clear between noon and 1 P.M. with little sunshine; clear again in evening.
18th.—Snow throughout the day; very heavy in the morning; fair evening.
19th.—Cold day; little sunshine at intervals in the morning; very bright starlight night.
20th.—Clear cold day, overcast and rather dark about noon; fine evening.
21st.—Fine clear morning, but very cold; little sleet in morning; overcast evening.

Almost continuous frost, but at no time very severe.—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 22.

We have no alterations to note this week.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	2	0	to	6	0	Melons	each	0	0	to	0	0
Apricots	dozen	0	0		0	0	Nectarines	dozen	0	0		0	0
Chestnuts	bushel	12	0		16	0	Oranges	⅌ 100	4	0		10	0
Figs	dozen	0	0		0	0	Peaches	dozen	0	0		0	0
Filberts	⅌ lb.	0	9		1	0	Pears, kitchen	dozen	0	0		8	0
Cobs	⅌ lb.	0	9		1	0	dessert	dozen	3	0		8	0
Grapes, hothouse	⅌ lb.	2	6		8	0	Pine Apples	⅌ lb.	2	0		4	0
Lemons	⅌ 100	4	0		8	0	Walnuts	bushel	0	0		0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	2	0	to	4	0	Mushrooms	pottle	1	6	to	2	4
Asparagus	bundle	0	0		0	0	Mustard & Cress	punnet	0	2		0	0
Beans, Kidney	⅌ 100	1	0		1	6	Onions	bushel	2	6		3	0
Beet, Red	dozen	1	6		3	0	pickling	quart	0	4		0	0
Broccoli	bundle	0	9		1	6	Parsley	doz. bunches	2	0		0	0
Brussels Sprouts	½ sieve	2	0		4	0	Parsnips	dozen	0	0		0	0
Cabbage	dozen	1	0		2	0	Peas	quart	0	0		0	0
Carrots	bunch	0	4		0	8	Potatoes	bushel	3	6		4	6
Capsicums	⅌ 100	1	6		2	0	Kidney	bushel	4	0		5	0
Cauliflowers	dozen	3	0		6	0	Radishes	doz. bunches	0	0		0	0
Celery	bundle	1	6		2	0	Rhubarb	bundle	0	0		0	6
Coleworts	doz. bunches	2	0		4	0	Salsafy	bundle	0	9		1	0
Cucumbers	each	0	4		1	0	Scorzonera	bundle	1	0		0	0
Endive	dozen	1	0		2	0	Seakale	basket	2	6		3	6
Fennel	bunch	0	3		0	0	Shallots	⅌ lb	0	3		0	0
Garlic	⅌ lb.	0	6		0	0	Spinach	bushel	2	6		4	0
Herbs	bunch	0	2		0	0	Turnips	bunch	0	2		0	0
Leeks	bunch	0	2		0	4	Veg. Marrows	each	0	0		6	0

WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 30—FEBRUARY 5, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises h. m.	Sun Sets h. m.	Moon Rises h. m.	Moon Sets h. m.	Moon's Age. Days.	Clock before Sun. m. s.	Day of Year.
30	TH	Royal Society at 8.30 P.M.	44.7	32.2	38.5	7 44	4 43	10 0	1 2	☽	13 32	30
31	F	Royal Institution at 8 P.M.	44.9	30.9	37.9	7 43	4 45	10 24	2 13	9	13 41	31
1	S		44.4	32.0	38.2	7 41	4 47	11 55	3 22	10	13 50	32
2	SUN	4 SUNDAY AFTER EPIPHANY.	44.6	31.5	38.0	7 40	4 48	11 38	4 27	11	13 57	33
3	M	London Institution at 5 P.M.	45.0	30.7	37.9	7 38	4 50	0 a 35	5 23	12	14 4	34
4	TU	Zoological Society at 8.30 P.M.	45.0	32.8	38.9	7 36	4 52	1 46	6 8	13	14 10	35
5	W	Society of Arts at 8 P.M.	45.7	33.5	39.6	7 35	4 54	3 6	6 42	14	14 15	36

From observations taken near London during forty-three years, the average day temperature of the week is 44.9°; and its night temperature 31.9°.

DIFFICULTIES OVERCOME.

THE life of a gardener is one series of difficulties, many of them to be conquered; others are apparently unconquerable. Some difficulties which look very formidable vanish after the manner of some celebrated warriors when we approach them boldly; but they do not all do so, and I doubt very much if the most successful gardener in this country ever went through a week of full practice without meeting some difficulty he could immediately overcome, or without being disappointed with the results of some of his cherished ideas. Disappointment is our daily fare, and without doubt that fare is good for us if we do not have too much of it; it sharpens us up, takes away our conceit, and teaches us to look out for "breakers ahead."

Professional gardeners are often taunted for not recording their failures, but it must be remembered that many professional gardeners have to serve non-professional masters, and that non-professionals who are not enthusiastic learners have no sympathy with failures, and think there ought never to be any. For that reason we are often obliged to withhold from publicity what we would gladly reveal to a sympathising friend; but you may take it for granted that if you meet a man who never has any failures he is not good for much, and that many of his boasted successes, if looked into by an impartial judge competent to count the cost, would be called by another name.

I will here mention one or two simple affairs which have been troublesome to me. Of course I know they ought not to have troubled me many moments because of their simplicity, but in case there should be one or two of your readers as dull as myself, I will not shrink from relating my little difficulties and the way I overcame them.

First about Mushrooms. "Well, anyone can grow Mushrooms who has a shed and some dung; even those who have not a shed can grow them perfectly in summer and autumn." Yes, that is so, as long as all goes on well; but now and then all does not go on well, and then if there is a breakdown in the supply it is a serious matter. I had one complete breakdown owing to a very fast-growing fungus of another sort which overran the beds, and I suppose exhausted the dung before the Mushroom spawn could fairly make a start. I had had funguses to deal with before, but none which totally spoiled the crop. I thought to stamp it out immediately, and for this purpose the house was cleared out, some sulphur was burned in it three times at intervals, every part that could be reached had boiling water poured over it, and finally, to make doubly sure, it was daubed all over, boards, floor, ceiling, and everywhere, with a mixture made of fresh lime and dissolved sulphur. Now, I thought, we shall have done with our enemy, and shall get on finely; but not so, a new bed was hardly ready for spawning before it was completely covered with the little umbrella-shaped fungus so thickly that you could hardly have put the point of a pencil down without touching them, and I determined to try my luck in another quarter. I did so. I made up a bed in a part of the garden three-quarters of a mile away from the scene of these disappointments, but with no better fortune, excepting that it proved to me I was on the wrong scent. It was plain now that the enemy came along with the dung; it could not be in the Mushroom spawn, for it appeared in the new place before the Mushroom spawn was placed in the bed. My next move was to throw the dung into a large mass and allow it to heat rather violently, turning it frequently, and moving the sides into the middle. By these means I managed to kill the spawn, although at the cost of much of the strength of the dung. When the cold weather came I was able to go back to the usual practice, and the fungus was no longer troublesome.

But yet another difficulty with this capricious esculent, and one which I have only just now overcome.

It is the misfortune of gardeners, especially in places where there have been many changes, that they have to do with buildings and arrangements totally unsuited for the purpose for which they are required. Such buildings have often cost as much or more money as would erect the most perfect structures, and proprietors having once gone to the expense of erecting them are naturally reluctant to pull them down or build others.

There are two things in common with a fruit room and a Mushroom house that should never be lost sight of. They should be so built that the external air will have as little effect on them as possible. The best place for the Mushroom house is either under ground or under other buildings, and if any part of the walls or roof is exposed they should be either very thick or hollow. My Mushroom house, which I do not advise anyone to copy, is a span-roofed slated building on the ground level, and with walls only one brick thick; it runs east and west, is exposed on both sides, and has the door at the east end, and that is also exposed. I could manage very well with this house sometimes, but in changeable or extreme weather there was always a difficulty. I drove some stakes into the ground a few inches from the wall, fastened them upright, and stuffed straw between the stakes and the wall. A shutter was then placed before the door to keep the draught out. This was an improvement; but we must go inside sometimes, the door must be opened for that purpose, and it need not be open long when the wind is eastward for the delicate Mushrooms to get more of their oriental visitor than is good for them. I next resolved to block up the door at the east end, build it up with dung, and make an opening communicating with a shed at the west end. Now I am happy to say I am going on pleasantly. How simple! Why did I not think of this before? Perhaps I might have done so if growing Mushrooms had been the only thing I had to think about.

I have some other ridiculously simple triumphs to record, which I must leave till another time.—WM. TAYLOR.

FRUIT CULTURE UNDER GLASS SIMPLIFIED.

Now that the season is approaching when the gardener's year may be said to begin, as well in the management of glass structures as in connection with out-of-door

work, I should like to make a few remarks on the general summer management of fruit structures, as I have considerably modified some important routine duties in the practice of the last few years. As these alterations tend to simplify the growing of indoor fruits without results being affected injuriously, but, as I think, giving in general better returns, I have the less hesitation in making a note on the matter. The beneficial results attending the resting of hothouse plants and fruit trees at night are now so generally known, though perhaps not quite so generally acted on as they ought to be, that mention is made of the subject here, and also because it forms somewhat the basis of what follows. It is a recognised point of gardening practice that where much artificial aid is called in to heat glass structures for growing either plants or fruits there must be, consequent on that aid, an artificial mode of keeping the atmosphere in a healthy state of humidity, at the same time that the external air is only admitted when the sun renders the heat dangerous to the well-being of the occupants. When it is found that much of the artificial heat long considered necessary for the successful production of hothouse fruits can be dispensed with to advantage, it must naturally come to be a recognised practice sooner or later to modify the application of moisture to the atmosphere, and probably also to admit more of the external air without basing the necessity of its admission on the presence of the sun's rays. Year after year, little by little, I have been dispensing more and more with artificially applied moisture, and increasing the amount of warm air by ventilation as much as possible night and day. I will particularise the routine management of some fruit-growing structures during the past year as illustrating the points desired to be enforced.

Grapes are not wanted in our case earlier than about the middle of July, therefore an early start of the Vines is not necessary. Houses of late Grapes were started from the beginning to the middle of February, and it may surprise many who have not thought the matter over to learn that the syringe was never once employed on the Vines, and that no form of "damping" was indulged in, the only moisture the Vines had atmospherically being solely what was spilt when watering plants and consequent on the borders being watered. The temperature was never attempted to be kept at a uniform height, but was solely governed by the weather; the houses were never closed early with a great amount of sun heat, but were allowed to decrease in temperature naturally with the ventilators open according as the weather was warmer or colder. The same conditions will be observed this year, as I am satisfied Vines will carry and finish heavier crops without injury than they will when under more artificial treatment. That so-called moisture-loving plant the Cucumber is grown under conditions somewhat similar. In frames and in pits Cucumbers are never syringed nor the atmosphere saturated with moisture, air being at all times admitted with freedom when the weather is favourable. Cucumbers at the present time are bearing freely, and have been throughout the winter, without any such practice as damping-down of the pit being indulged in. These plants were grown at first with air on night and day until the weather put a stop to ventilating. It must be understood that excessive heating so as to promote a high temperature and dry atmosphere is not attempted. Melons are grown under similar conditions, and they carry their foliage to the last without any insect pest causing annoyance. Peaches are the only kind of fruit that require with us to be syringed, and in their case we believe it to be solely through insufficient ventilation. Such a red-spider-haunted plant as the French Bean goes scot free under our treatment. As a preventive of red spider the pipes in the vineries are painted with a mixture of soot and sulphur, for there is nothing like making assurance doubly sure. When Peach trees are attacked hot soapy water is syringed on them. When properly prepared and applied this is one of the most efficient insecticides. The soap (soft) should be dissolved with boiling water into paste, then have hot water mixed with it, stirring the while; it may be applied with a syringe as hot as 160° Fahr., the water cooling considerably during its passage through the air.

Briefly to summarise, artificial heating is a necessary evil unnecessarily indulged in as a rule. If employed as a recognised evil the unnatural condition of growing fruits, &c., in a constantly humid and unnecessarily close atmosphere can be dispensed with, and an airy and more natural medium substituted. Fruit is produced under these latter conditions in quantity and quality equal to that grown under the former conditions. Insect pests are not so easily introduced as when the syringe is kept in use during the earlier stages of growth. The labour is very much lessened, as well as expenses of firing; whilst the perishable portions of the structures are kept under conditions the most favourable to durability.—R. P. BROTHERSTON.

NOVELTIES IN THE ROYAL GARDENS, KEW.

FOR some years we have had great pleasure in the flowering of Billbergia nutans, a plant that cannot fail to attract attention; yet, probably from belonging to the Pine Apple order, it appears not to have secured the favour of floral cultivators. It has narrow and graceful leaves, which at once give it character in the genus to which it belongs. The flowers are in panicles, which droop elegantly from an erect stem, and have peculiar though rich colouring; the segments are bright green, with a clear and distinct margin of indigo blue. They recurve like the sepals of a Fuchsia. These features may not be to the pleasure of all, neither do they exhaust the merits of our plant; but to supply the beauty of bright colour there are large pink bracts, which afford a decorative value worth bearing in mind. The species is very free-flowering and easily managed. Like most other Bromeliaceæ it requires to have the old stems that have flowered cut away as soon as they have imparted all the strength possible to the young growth. If cultivators would bear in mind the treatment of a Pine Apple when growing this plant it would doubtless soon become popular, or at least much more so than at present. Suckers taken in hand, apart from the old stools, would make fine growth, and consequently produce a fine mass of bloom. In the case of the species before us it would be desirable to have five selected suckers for a 32-pot, so as to obtain their flowering together. It delights in a stove temperature, with as a rule a good supply of moisture both to the soil and atmosphere. The matter of soil requires no prescription provided that water passes through freely. This would usually indicate a peat soil, which indeed suits it to perfection. It is a native of tropical America. A plant was brought to the Royal Horticultural Society a short time since by Mr. Green, gardener to Sir George Macleay, a source likely to provide so pretty a rarity of this order, it being one of the specialities of Pendell Court. At Kew it has long been grown and admired by many.

Anyone who has passed through the Palm house or T range during the last few weeks must have noticed how pleasing an effect is produced by the rarely grown though pretty Goldfussia isophylla. Belonging to the same order (Acanthaceæ) are several useful winter-flowering plants, such as Sericographis, Eranthemum, and others which require the same treatment. This Goldfussia makes a small compact shrub; the leaves are opposite and narrowly lanceolate, just such as confer the graceful appearance of a Willow. The flowers, though only lasting a short time, are very numerous, and are produced in succession for some weeks. It is one of the most easy plants to grow, and, unlike many of its allies, is possessed of a very neat habit.

Ainsliæa Walkeri is a botanical treasure rather than of horticultural value. It comes from the island of Hong-Kong, which, though only containing twenty-nine square miles, rejoices in a flora less than that of the British Islands by only one-third, and where a species is so rare as to be known by only three trees; another, indeed, being known only by a fragment picked out of a faggot of wood! The flora of this island is remarkable for its richness and for the extreme localisation of many of the species; indeed, the exact locality of the above plant is unknown. It is of interest as a Composite from its tendency to become shrubby; the stems grow erect and bear numerous narrow and graceful leaves. The flowers are not showy; they are still pretty, and grow in heads of about three only; the anthers are purplish red, all other parts being white. This plant is in the Begonia house. Near it also is Calliphruria Hartwegiana, a rare bulb with white flowers, and altogether much like an Eucharis in miniature. It is a native of New Grenada, whence it was imported by Mr. William Bull.

We may briefly mention the recent flowering of Colchicum luteum, the only known yellow-flowered species. It is very pretty, but our limited experience of it has not proved it hardy as might have been expected; hitherto it has been too scarce for exhaustive experiment. It may, however, from its high elevation be able to endure the cold of our climate. Though introduced little more than three years ago it has been known since about 1840, then being discovered by Griffith. It grows in the

mountains of the extreme west of India beyond the Indus, extending to Afghanistan.

In the house No. 4, or conservatory, besides the usual occupants of this kind of structure we note the rare Monochætum Lemoineanum. It is an extremely pretty Melastomaceous plant; the leaves are small and the flowers large, equal to or exceeding the size of a shilling. They are rosy in colour, numerous, and ornamental, and, having the peculiar stamens belonging to this order, appear curious and interesting. This species forms a larger shrub, and is more erect than the other cultivated kinds. It has a neat habit, and is altogether charming; even the light brown bark confers a beauty.

Acacia platyptera during the last three months has been quite a floral picture in the temperate house. It should be grown everywhere, and we know that it is not. The capacity for appreciating the best kinds, such as A. Drummondi and others, cannot fail to appreciate this. It has a light and very graceful habit. The stems are all broadly two-winged and appear as if flattened. The flowers are of bright golden yellow, in little balls, and appear in great numbers towards the arching extremities of the branches. That this species should pass the winter through in full flower regardless of dark and short days is a circumstance greatly in its favour.

THE PROPOSED ELECTION OF PEARS.

I AGREE with "WILTSHIRE RECTOR," that an election of Pears on the same principle as that of the Roses would be very valuable; but some discussion must first take place as to the number of varieties to be named, and whether wall fruit is to be included, and stewing Pears. Soil, climate, method of pruning and training, &c., exercise so great an influence on the Pear, that all those things have to be taken into consideration. As from the very time I was a boy I have been interested in Pears—my father growing more than seventy different varieties trained in various ways, the produce of each tree being counted, its aspect, whether against wall, or espalier, or dwarf or standard, &c., noted—I have had considerable experience with this fruit.

"R. M. H." condemns many Pears which I know succeed well in favourable situations, but he clenched all by condemning the Seckle because it was too small, being, perhaps, the finest-flavoured Pear in cultivation, very hardy, dwarf, an abundant bearer, very thin skinned, and of beautiful texture. Many may think the Seckle too aromatic and perfumed, but why condemn it for lack of size? As well condemn the Ironmonger Gooseberry, and put Thumper, Roaring Lion, or some other other huge Gooseberry, in its place in the dessert list.

I should suggest twenty-four Pears as a suitable number for selection, not limiting the period of ripening, but stating whether for walls, espaliers, or dwarfs, standards, &c.

My experience in the north with Apples, Pears, and Plums leads me to recommend summer, autumn, and winter pruning—not thinning-out the shoots too much, but checking strong growth, and to plant rather closely (as far as dwarfs are concerned), for protection. I do not think the ripening of the wood by sun and air really of such great importance as protection of the blossom buds in spring when they are opening, which close pruning (which really gives more branches), materially helps. I have noticed this, especially in dwarf Plums and Apples. Pears, except on the Quince, do not endure the same amount of pruning, especially when young; but once bring a tree into good bearing its growth is materially checked by the fruit it bears, and in spite of Mr. William Taylor's verdict I have had such profusion of fruit from dwarf Pears and Apples grown as pyramids that I see no reason to despair. My crop of Plums on dwarf trees planted only 6 feet apart in a square of about thirty trees was as heavy last season as ever. Pears especially and Apples suffered from cold winds and wet after the blossom had set, which made some of the fruit drop off and pitted and cracked the young fruit remaining; but many trees protected from cold winds had fair crops, and the quality of some Cox's Orange Pippin Apples against the south wall of an old barn was as fine as any I have ever tasted, and also were some Margils, and Marie Louise Pears.

I hope "WILTSHIRE RECTOR'S" suggestion may be taken up and discussed, and he will deserve the thanks of the pomological community, even a wider fraternity than the lovers of Roses, if he will undertake the duties of returning officer. As, however, there are so many persons who grow Pears and Apples, and there is an old adage, *Quot homines tot sententiæ*, I should be inclined to ask a few noted pomologists from each county, rather than be ready to accept any lists sent. Our Editor, the author of the most complete work on fruits, "The Fruit Manual," could, I think, very well select the names. I suggest this though I was accused somewhat in the matter of the Rose election of wanting to elect the electors, though all I meant then was to confirm the recent lists of Roses. I fear in a generally open election of Pears "WILTSHIRE RECTOR'S" patience would be much taxed, and, as Mr. Hinton will bear me out, to classify and arrange returns requires much time, care, and patience. I drop these hints for what they are worth, and venture to add a list of twenty-four Pears nearly in order of ripening, which seem generally to do well in most soils and climates.

1. Citron des Carmes
2. Beurré de l'Assomption
3. Jargonelle
4. Souvenir du Congrès
5. Williams' Bon Chrêtien
6. Flemish Beauty
7. Louise Bonne of Jersey
8. Gratioli
9. Seckle
10. Marie Louise
11. Beurré Superfin
12. Brown Beurré
13. Comte de Lamy
14. Doyenné du Comice
15. Gansel's Bergamot
16. Beurré Bosc
17. Beurré Hardy
18. Thompson's
19. Maréchal de Cour
20. Hacon's Incomparable
21. Zéphirin Grégoire
22. Winter Nelis
23. Van Mons Leon Leclerc
24. Ne Plus Meuris

Of these, 8, 11, 12, 14, 15, 18, 19, 20, and 24 are worthy of walls, especially those facing west and south-west, but nearly all do well both as dwarfs, espaliers, and on walls.—C. P. PEACH.

A HORTICULTURAL TOUR IN THE WEST.

I HAD a desire for a long time to visit Cornwall, partly from reading and hearing of the great antiquity of its tin mines, the bold rugged grandeur of its coast, the mildness of its climate, and its almost subtropical vegetation, and partly from being told that Camellias, Indian Azaleas, and many tender plants and shrubs from different parts of the world grow luxuriantly in Cornwall that require greenhouse protection in other parts of the country. Besides this, I had often read of the enormous quantity of Broccoli and early Potatoes it supplied to the London and other markets at a season when such vegetables were scarce elsewhere. This induced me to visit Cornwall in September last, where I spent a week, in company with two friends, in visiting the different places of interest, making Truro our head quarters.

Early on the morning after our arrival we visited Mr. Treseder's nursery, which is pleasantly situated in a valley a short distance from the city. A stream of clear water runs through the outer portion of the grounds adjacent to the propagating houses, affording a good supply of water at all seasons. We were told it was well stocked with trout. Besides being of great advantage to the nursery in dry seasons, it has a cheering effect on entering. Mr. Mitchell, the manager, kindly showed us over the nursery grounds, which, though not very extensive, contained a fine stock of the most useful kinds of fruit, forest, and ornamental trees and shrubs in great variety and in good condition, all neatly arranged and planted according to their sorts, so as to facilitate the execution of orders. Large quarters were devoted to the commoner kinds of forest trees, while long borders were planted with the choicest kinds of Coniferæ, hybrid Rhododendrons, different kinds of American plants, Dracæna indivisa (a plant that grows well in Cornwall), whilst Phormium tenax, Yuccas, Ivies, Spiræas, Phloxes, and other herbaceous plants in variety occupied beds. The nursery grounds were clean, and, to judge from the general arrangement and order, it reflected credit on the manager.

After breakfast we met by appointment Mr. Mitchinson, nurseryman and seed merchant of Truro, a gentleman we found a most sociable and generous companion. He kindly offered to take us to see a few of the principal places in the neighbourhood, situated south of the city in the direction of Falmouth. We called first at Glamoor, a pretty little place on the outskirts of Truro, the property of Mr. Mitchell, one of the principal merchants of the district, whose gardens were laid out by Mr. Mitchinson about seven years ago. They are neatly laid out and tastefully planted with trees and shrubs, which have grown remarkably well.

Hence we proceeded about two miles farther south through an undulating country, and arrived at the approach to Killiow, the seat of the Danbuz family. The gardener, Mr. Braund, very good-humouredly conducted us through the plant houses and over the grounds and gardens, which were well cultivated. We noticed some fine specimens of Rhododendrons and Coniferæ in the pleasure grounds, and a large raised bed

of the hybrid tuberous-rooted Begonias in full bloom and in luxuriant health in the flower garden. The greater part of them were seedlings, which for brilliancy of colour and general effect could scarcely be surpassed. My friends were surprised and much pleased to see the decided improvements that had been made on this estate and its surroundings since their first acquaintance with it some thirty years ago. Much of the land which was then barren waste is now crowned with thriving plantations and fertile fields. Agricultural improvements here have not been forgotten; the land has been thoroughly drained and well cultivated, and it is now bearing fine crops. On the lawn opposite the mansion a party of workers were busy making a second crop of hay, not by female labour, however, but by machinery.

After leaving Killiow we passed some fine scenery, reminding us of some parts of Scotland, until we came in sight of the Carnon Valley, and looking westward we beheld such a scene as perhaps no other county but Cornwall could present. Here the great mining district of Gwennap and St. Day was right before us, dotted all over with mines, peculiar-looking engine houses, and large heaps, the refuse of the mines from which immense wealth has been realised by Cornish families, and employment afforded to a vast population. Crossing the Carnon stream we passed on the left the modern shipping port of Devoran, and soon came in sight of Gonvrea, the Cornish residence of the late member for Truro, Sir Frederick Martin Williams, who was identified with the leading industries of the county.

Passing Carlew, which will be referred to in a future number, we arrived at Enys, the property of Francis Gilbert Enys, Esq. This place is famous for its timber and its game. The former owner was a great lover of arboriculture, and the present proprietor has a great attachment to pheasants and other game, including rabbits, which abound here; therefore one must not expect to see a place in a high state of keeping that is almost totally given up to game-preserving. We were not long in finding Mr. Mills, considering the wide range of his duties, which are not confined to the gardens alone, he having the management of the woods as well. Mr. Mills is intelligent and well up in his profession, and the half hour we spent with him was full of interest. He showed us some fine specimens of choice Coniferæ and large bushes of Aucuba japonica profusely berried, which he had grafted the male plant on a few years since. By this means an abundance of fertilising pollen is shed over the plants, and a good crop of berries is obtained yearly. Hydrangeas grow to a remarkable size at this place, and the flowers of the most of them are blue.

Amongst other things we observed worthy of note in the kitchen garden was a splendid crop of Peaches on the walls.

On taking our leave of Mr. Mills we drove along the carriage road in the direction of Falmouth. Within the lodge gate on the south side charming views are obtained of Falmouth harbour; its shipping and general surroundings are very picturesque in the distance. Once out of the lodge gates we drove to Penryn, where we found creature comforts after a long abstinence in Vivian's Commercial Hotel.

After doing justice to a substantial tea, served up with et-ceteras, and the horse corned and rested a little, we started for Tremough, which is about a mile distant, and lies in an upland valley, commanding a fine view of the country round Falmouth. We decided on crossing the fields and ascending the hill on foot, and cabby was instructed to go round by the road and meet us at a certain place where the gradient became easier. As we ascended we had a fine view of the mansion of Tremough, nestled on the hill with its range of glass houses glittering in the setting sunshine, and on looking back we beheld a lovely view of the mouth of the Fal with its wide spreading harbour, crowned on the right by the castle of Pendennis, and on the left by that of St. Mawes. The sun was setting in the west, which considerably added to the beauty of the whole scene. Our time was limited, and our guide (Mr. Mitchinson) hurried us on, and as soon as we arrived at the gardens he lost no time in finding Mr. Gill, who without delay showed us as much of the place as he could, and the plant and fruit houses, where everything appeared in good order. We admired a flower garden adjoining the mansion with plain beds cut out in the grass. The figures in themselves were nothing to admire, but the pattern and style of carpet bedding and the health and regularity of the plants surpassed anything of the kind we had ever seen. This place is famous for its Rhododendrons. The shrubberies for the most part round the mansion are composed of Rhododendrons of the very best varieties. Besides these Mr. Gill pointed out a great many fine plants of new varieties which had been raised on the place from seed of their own saving and hybridising. The whole place showed indications of great skill and care on the part of the gardener, and we were sorry that time would not allow of us taking notes of some of the fine things we saw at this place. We then returned to Truro, and finished the day's proceedings by having a look round Mr. Mitchinson's nursery by the light of a brilliant harvest moon.—A. PETTIGREW, *Castle Gardens, Cardiff.*

THE SETTING OF GRAPES.

As the time is drawing near when Vines in the earliest houses will be in bloom, I think a few remarks will not be inopportune on the setting of Grapes. This is a point in gardening that is, I think, too much neglected, and more attention ought to be given to it than is generally the case. If handsome bunches are required they must receive a little special attention during the blooming period. Vines that are in bloom during the dull cold days of January are not like those that bloom during April and May, as the former cannot receive so much air as the latter to assist fertilisation.

There are various modes of assisting fertilisation, and the one that I have proved the most effectual is, like many other good points in gardening, by no means new. The practice I adopt and recommend is to permit the Vines to grow unchecked whilst in bloom—that is, not to stop them; and then to give each bunch a gentle tap twice a day, at 10 A.M. and 1 P.M., until the berries are set. But it must be borne in mind that shaking the rod at the base of the rafter will not suffice, as I have found by that practice that many of the bunches at the apex of the house will set very irregularly. Every bunch must be tapped individually. Muscats will set as freely as Black Hamburghs, and even Canon Hall Muscat and Black Morocco will set under that treatment, whereas if artificial means are not employed those Grapes will scarcely set at all. By adopting the practice referred to I have set Muscats perfectly at a minimum temperature of 55° to 60°. I think that to keep the houses at a high temperature whilst the Vines are in bloom is quite a fallacy. A minimum temperature of 70° to 75°, as is practised by some growers and occasionally recommended through the press, I regard as detrimental to the Vines, and tends to breed red spider. Vines that are managed under high temperatures do not usually continue for many years in a vigorous state.—A SOUTHERN GROWER.

THE NATIONAL ROSE SOCIETY.

IT is unfortunate when people write about matters on which they are only imperfectly acquainted, and so taking up false premises arrive at false conclusions. This has been the case recently with regard to the schedule of this Society and its proposed alterations. Now with regard to the class for forty-eights, the experiment is to be tried this year, as there will be forty-eights exhibited by Messrs. Jowitt and Baker for Mr. Cranston's cup, whether a class for thirty-sixes is not sufficient for an amateur—whether, in fact, it does not test an amateur's powers quite as much as seventy-twos do a nurseryman's. And surely "OXONIAN" raises an entirely false issue when he asks if the Rose election does not show that it is possible to stage forty-eight superior Roses. That is not the question. It is whether an amateur on any given exhibition day is able to cut that number of blooms. I have never seen a forty-eight without one or two weak blooms; and it may, perhaps, surprise "OXONIAN" to hear that when some leading exhibitors were chatting together over their experiences after the Committee meeting of the Society, it was stated there have been times when out of four rows of two hundred plants each not half a dozen blooms could be cut to satisfy the grower, while on other occasions perhaps ten times the number might be had. But "OXONIAN" is again mistaken if he supposes that the Committee has in doing this reduced the number of classes. So far from this being so they have increased them; and as one of the Society's objects is to encourage fresh aspirants for the honours of the Society, additional classes have been made for smaller growers. With regard to the fourth and fifth prizes an entirely different opinion was expressed by many exhibitors, as they considered that to be anywhere in the race at the National Rose Society's exhibitions would be a greater honour than to take a high position at many other places; and I have a strong belief that

when "OXONIAN" and "MID-SURREY" see the schedules that they will approve of what the Committee has arranged.

I should like here to say a word as to the strictures in the "Rose Annual" (referred to on page 50) on the Crystal Palace Show. While admitting that the Company failed in some of their engagements which they will remedy this year, it is news to me, and I believe to most others, that there was any considerable number of exhibitors discontented. I remember hearing Archbishop Whateley telling a story of his wishing at one time when rector of a country parish to close up a pathway through the churchyard, at the same time making another much more convenient. It was represented to him that the whole parish was up in arms, &c. "Well," he said, "let us try." So he sent a man round to each house with a bag and a nnmber of black and white beans to poll it. When brought back it was found that there were just six black ones, *voila tout.*—D., *Deal.*

GRAPES, PEACHES, AND FIGS.

ON page 3 of the number for January 2nd it is stated that there is no reason whatever why anyone may not have Peaches and Grapes only but Figs as well in the same house. In my charge is an orchard house 70 feet long and in two parts. Vines are planted outside and trained up the roof, and in the early house in front close to the glass Tomatoes are grown, and last year they produced a splendid crop; the Vines in the back border are planted inside, and we have Figs at each end of the house and trained along the wall, the trees producing two crops every year without fire heat. In the late house are Vines and Figs just the same as the other house, but in the front border we have a row of Peach trees which bear well, but the flavour of the fruit is not quite so good as those grown outdoors. The trees in the house are now crowded with fruit buds. The Vines have done very well, and last year we cut nearly five hundred bunches. We also have shelves both at the front and back for Strawberries. British Queen I find the best sort. Besides our mixed fruits we have a few flowers in the house to make it cheerful.—A YOUNG GARDENER.

HELLEBORES.

IT is stated at page 29 that Helleborus olympicus is synonymous with H. guttatus, abchasicus, and colchicus. This is erroneous, and to allow such statements to pass unnoticed will only tend to add to the confusion that already exists with regard to the nomenclature of this interesting class of hardy plants, more especially now that the popular taste for them is evidently reviving. The illustration given admirably represents the Olympian species, and the description is lucid enough, though I do not think the writer will find one kind of Hellebore with palmate radical leaves—that is, if a fully developed specimen be examined; and, again, it must be an exceptionally mild winter to see H. olympicus with expanded flowers in December; generally with us it is about the middle of March that they are in perfection in the open air. The following brief remarks will be found sufficient to recognise at a glance the distinction between H. olympicus and the three species above mentioned when in flower.

H. guttatus is a native of the Caucasus, and resembles its Olympic congener in habit and texture of foliage, also by the number and form of flowers, but the sepals are invariably more or less copiously marked with dark purple spots, thereby rendering it a more attractive and desirable plant, and on this account it has been used in crossing with other species, resulting in many beautiful hybrids which have been produced chiefly in continental gardens. The type is as yet somewhat rare in gardens in this country. H. abchasicus is also a Caucasian species, agreeing with the last in the texture and division of the leaves, but is much taller in habit; rather smaller flowers of a rich deep purple colour, and produced very freely. It may also be found in collections under the name of H. olympicus rubra, &c. Nearly allied to this species is the Hungarian H. atro-rubens, which is a very handsome plant. H. colchicus is the handsomest and largest of all the Hellebores, and is very distinct from either of the preceding. The foliage is large, coarsely serrated, and of a leathery texture; the flowers are produced freely on stout forked stems, and are larger and more shallow than those of the other kinds, and of a deep glaucous purple colour. It is a native of Asia Minor, chiefly in the north-eastern district. H. orientalis is the true Black Hellebore of the ancients, but comparatively is of recent introduction to cultivation in this country, and is yet very scarce. The most obvious point of distinction from its near allies is the dense short pubescence on the under surface of the leaflets. Several other kinds, such as H. antiquorum, caucasicus, &c., may be frequently met with in collections representing the true oriental species, but they do so merely in the name. The Hellebores above enumerated comprise, together with the fine hybrids that have been obtained by intercrossing them, and, of course, not omitting the well-known H. niger and its major and minor forms, all the kinds which from a horticultural point of view may be considered as attractive garden plants, the others producing greenish or dull purple flowers.—W. G.

HEATING HOUSES AND FRAMES BY PARAFFIN STOVES.

IN detailing my experience, which may be useful to some of your readers, I will not take up your valuable space by giving a long table of the temperature in frames, &c., but will give the temperature of the external air and greenhouse for the 10th, 11th, and 12th of January last—viz.,

DATE.	EXTERNAL AIR.		GREENHOUSE.	
	8 A.M.	9 P.M.	8 A.M.	9 P.M.
	deg.	deg.	deg.	deg.
January 10	20	25½	40	39
" 11	23	25	41	42
" 12	19	32	42	40

Thus showing the use of a paraffin stove. I should state that I cover half of the top of my house with one thickness of matting.

I now wish to thank "E. H." for a little further knowledge I have gained from reading his very instructing letter on page 26—viz., "Cutting a door in the side of a frame to put in the lamp instead of lifting off the lights," and I intend to use this information in this way—viz., I have a frame which is 5 feet high at the back and 4 feet high in the front. This is one of the frames I use for Cucumbers in the summer. Now, my plan is this: to cut a door in the front 3 feet high and 1 foot wide, and then to obtain three pieces of wood each 3 feet by 1 foot, and nail these together and fix them into the ground inside the frame where the door opens (thus making a sort of box open where the door of the frame is, and open at the top and standing 3 feet high), so that I shall be able to place manure in the frame and meanwhile keep the space clear for my stove to stand. By this means I shall secure bottom heat for my Cucumbers from the manure, and the lamp will afford top heat.

I am now making a stove with an evaporating pan on the top so as to give off a moist heat.—F. W.

THE WINTER IN SOUTH WALES.

SOME current notions have been exploded this winter, two of which may be particularly noted—one, that the winters are mere shams now-a-days to what they were in ancient times; the other, that plenty of berries on trees was always a sure sign of a severe winter, their absence indicating mild weather. About the first of these it is unnecessary to speak; and respecting the berries there has been none here this winter, and this I learn is the case in many parts of the country. On this account small birds have had a hard time of it here for the last two months. I hope the snails have had the same, as during all that time it has been more or less frosty.

With the exception of a few days about the end of December the frost was most severe during that month, but the roughest and sharpest days we have had here this winter were from the 7th to 12th of January. Snow fell heavily on the 7th. During the night it was frozen so hard on the evergreens that many of their branches were broken, and it was impossible to relieve them of their most unusual load for several days, as the frost remained keen day and night, ranging from 10° to 20°.

After this frost and that of December it might be thought that vegetation in our usually mild climate must have suffered severely, but so far as I can see such is not the case. In fact, although we have already passed through the most severe winter in the memory of the present generation, fruit trees, shrubs, &c., generally look as well now as they did before the frost; whether their appearance is deceptive time will prove.

Wherever tender shrubs are growing in sheltered shady spots it is there that the damage is done, in consequence, probably, of the growths not being well ripened; and it is, I think, solely owing to everything being so well ripened during the great heat of last summer and autumn that shrubs, &c., in exposed positions have escaped so well.

Should the spring prove mild the fruit crop should be fine in this district in 1879, as all kinds of trees are bristling with blossom buds. Now (January 20th) it is blowing a freezing wind, and I think this often proves more injurious to vegetation than much more severe yet still quiet frost. Respecting kitchen-garden crops they have fared much the same as Mr. W. Taylor's, referred to at page 41.—J. MUIR, *Margam.*

P.S.—January 25th. Still blowing a keen black frosty wind, vegetables going back seriously.

ADIANTUM FARLEYENSE.

I HEREWITH forward an extract from an interesting book of travels entitled "Under a Tropical Sky," by John Amphlett, which I think will throw some light on the origin of the above beautiful Fern. If, as stated, no fertile fronds are ever found on it, there can be little doubt that it is not an original species, but, like many other varieties of Ferns, a sport from some other kind. The extract I forward is therefore valuable as giving the opinion of persons on the spot as to the particular species from which it is in all probability derived.—J. F. CRANSWICK, *Chapel Allerton, Leeds.*

"Then we drove on to Farley Hill—a very fine house, the finest in Barbadoes. That most graceful Fern Adiantum farleyense was raised here. The fernery is in a valley shaded by evergreen and Tamarind trees, and is full of the most lovely Ferns. I heard the history of A. farleyense: it seems to be undecided whether it is a species, or a variety, or a hybrid; and there seem to be some forcible arguments against each of these views, though of course one must be the right one. Against its being a distinct species it is said that it has never been found wild, but comes up amongst Adiantum seedlings in Farley Hill fernery, and in one other only in the island. Against the view that it is a variety is urged the fact that about one in ten of these seedlings is always a farleyense, which never varies in its form, nor do the other seedlings vary from each other, as they most probably would do if it were only a sport. While of course against its being a hybrid it is asked how Ferns, which bear no flowers and on whose spores no bees or flies ever rest, can get hybridised with one another. My informant nevertheless imagined it to be a hybrid between Adiantum tenerum and A. macrophyllum, though if it is so it seems strange that it should not occur in many other ferneries where there are specimens of those two species."

NOTES AND GLEANINGS.

A MEETING of the General Committee of the NATIONAL ROSE SOCIETY was held at the rooms of the Horticultural Club on the 22nd inst., R. N. G. Baker, Esq., of Heavitree, Exeter, in the chair. There was a full attendance, and various parts of the country were represented. The schedules for the Crystal Palace and Manchester Exhibitions were finally arranged, some slight alterations having been made. Messrs. T. Francis Rivers, J. Burnaby-Atkins, and Arthur G. Soames were elected members of the Executive Committee. Drawings for a dye for the Society's medal were submitted and approved, and it was considered that the best way of increasing the number of members would be to obtain the services of some more local secretaries. Birmingham was suggested as a desirable and probable place of meeting for the provincial show in 1880.

—— "G. P., *Northumberland*," suggests that "all CONTRIBUTORS TO THE JOURNAL should add after their names and initials the name of the county in which they reside, thus enabling readers to judge whether this or that plant or fruit would suit their own particular locality.

—— A CORRESPONDENT "DUNKELD," desires to know where and when a Rose called MRS. HUNTER was first brought out. He has received a dozen plants from an English nursery, and it is described as a Rose something between Camille de Rohan and La Rosière.

—— "IN your interesting review of the 'ROSARIAN'S YEAR-BOOK FOR 1879,'" writes Rev. Alan Cheales, "it is stated there that my paper on Rose-judging read before a meeting of the General Committee of the National Rose Society was 'published at the time in our columns.' This is not the case. The rules agreed upon were, and several very able articles on the subject, but my particular paper had not that honour; nor, indeed, would it have appeared in print had not my friend the Editor of the 'Year-Book' asked for it to append to a list of the rules as at last decided on."

—— IN reference to the PRIZES FOR EARLY PEAS offered by Messrs. Sutton & Sons at the Royal Horticultural Society's Great Summer Show, 1879, we are authorised to state that in consequence of the continued severe weather impeding gardening operations, Messrs. Sutton have withdrawn the restriction as to the early Peas being grown in the open ground, and that intending competitors may grow their specimens in any way best calculated to produce well-filled pods.

—— REFERRING to the IMPROVEMENT OF ST. PAUL'S CHURCHYARD, the *City Press* states that the purely ornamental department has been entrusted to Mr. E. Milner of Norwood, who will superintend the laying-out of the ground somewhat in the form of a modern pleasure garden. The whole of the north-east, south-east, and south-west of the churchyard will be planted with trees and shrubs; and flower beds and the customary accessories of the landscape garden will find their place in the development of the work. The amount of Mr. Milner's tender is £500. A fountain is to be erected to the north-east of the churchyard, which will probably be embellished with a statuette of St. Paul. The work will go forward immediately upon the signing of the contracts, under the personal supervision of Mr. A. Murray, acting for the City Architect.

—— THE following gentlemen have been elected members of the HORTICULTURAL CLUB, namely—Messrs. J. D. T. Llewelyn, J. T. Strange, and Samuel M. Robins.

—— MR. BARDNEY writes that he had a short time ago the privilege of inspecting a house of late Grapes grown by Mr. Barton, gardener to Mr. Clayton, Stanfield House, Wavertree. The house contained such varieties as Lady Downe's, Alicante, Barbarossa, and one Vine of Trebbiano. The Grapes were excellent, being well finished in every respect. Since that time Mr. Barton has cut the Grapes; they are bottled and placed in the fruit room. Some of the Grapes cut from the same house in 1877 and placed in bottles kept well until July last. This house of Grapes is a practical proof of Mr. Barton's ability as a Grape-grower.

—— A CORRESPONDENT writes to us as follows on ABULITON IGNEUM:—"The Abutilon which was exhibited at the November meeting of the Royal Horticultural Society under the above name I grew several years ago under the name of A. insigne. It is distinct from all other Abutilons by its dark green somewhat corrugated foliage and the crinoline shape of its pendant velvety flowers. Cuttings struck in the spring and grown freely through the summer commence flowering in the autumn and continue throughout the winter. It is one of the finest plants for training up the rafters of a stove with which I am acquainted."

—— AFTER inspecting a large collection of old and new WHITE-EDGED GERANIUMS FOR BEDDING (Silver Bicolors) in Mr. Cannell's trial grounds at Swanley, we thought Princess Alexandra one of the very best. In growth the plants are free yet compact and level, the foliage being flat and the edges of the leaves very pure. For lines and panels this variety is admirably adapted. For working-up a stock quickly plants should be placed near the glass in a heated house, and the cuttings struck in heat as they become large enough, spring-struck cuttings being preferable to those struck in the autumn and wintered in a semi-starved state.

SUTTON'S MAGNUM BONUM POTATO.

THE quality of this Potato when cooked is, in my opinion, first class, but it must be cooked and not spoiled in the cooking, as one half of the Potatoes are. I have just had some boiled as a trial; they were pealed, placed in the saucepan with a little salt in the water, then on the fire, and made to boil as quickly as possible (not allowed to stand on the stove to boil by chance). After boiling for twenty minutes they were strained and left in the saucepan to dry about two minutes; they then turned out beautifully white, mealy, and full flavoured—just what a really good Potato ought to be. The tubers are equally good if cooked when in their young state just taken from the ground, at least mine were, and I had some difficulty in keeping sufficient for seed. Out of over thirty varieties we grew this season Magnum Bonum was far ahead of all others for quantity, quality, and freedom from disease. Mine is not a good Potato soil, being too stiff. Whenever I obtain a new variety for trial I make it a rule to grow it with my ordinary kinds, and to

give no special place nor attention to the new comer, which is, I think, the only fair way to prove its quality. Last season was not a good one for judging Potatoes, rain being so prevalent, so we must be prepared for some differences of opinion. —S. TAYLOR, *Castlecroft, Wolverhampton.*

THE CHRYSANTHEMUM TOURNAMENT.

FOR some weeks past each number of "our Journal" has contained some items of correspondence respecting that grand autumn flower, the Chrysanthemum. It commenced with the Liverpool escapade, and has now reached the proportions of a proposed tournament in which the productions of growers in all parts of the kingdom may be placed side by side, and their merits tested by a previously-agreed-upon standard of excellence which will require some little discussion before a decision can be arrived at. The points that each flower ought to possess have been described with but little variation by more than one writer in, I think, a very lucid and complete manner, but how some of them are to be obtained has not, I opine, been sufficiently elucidated; for instance, evenness and regularity of petal together with shape of bloom are qualities that no experienced judges can possibly disregard. To produce these points to their fullest development in a southern point of view art in the form of dressing plays a conspicuous part; so much so indeed, that I venture to assert without fear of contradiction that a twelve or twenty-four stand of the very best grown incurved flowers if undressed would stand a poor chance of gaining honours at a metropolitan exhibition. Now, I would ask, Are exhibitors in this tournament of the future to stage perfectly natural blooms, to combine nature and art, or to act in whatever way their fancy may suggest in the matter? No rule at present being laid down for their guidance, I think this subject will require much careful consideration, for unless it is well defined the exhibitors and judges will be working on an unsound basis, not knowing how to act for the best.

Mr. Elliott proposes the blooms to be staged with 3 or 4 inches of foliage as cut from the plants. Fancy such indispensable varieties as Princess of Wales, Prince Alfred, and others of that class with their long naked flower stalks being treated in this fashion! Almost all varieties would require a support of some nature, which would be an objectionable feature. The extra size of box ought not to be lost sight of in conveying them any distance, together with the liability of their injury from anything in the way of a severe jolting.

With respect to the number of judges, Mr. Ollerhead seems to think the Floral Committee of the Horticultural Society would undertake the duty of pronouncing an opinion on the several exhibits if the show came off at Kensington; but I have yet to learn that those gentlemen are experts in Chrysanthemum growing. Mr. Elliott's proposition of five judges appears to me a more reasonable idea, though for my own part I cannot see the necessity of having more than three, that number being all that are usually employed for an affair of this nature of much greater pretensions than this has a probability of being.

I hope after what has passed that next season will see both north and south trying their best in friendly rivalry to excel each other, and trust the most points of superiority will be satisfactorily decided for at least one year to come.—G. O.

[There are other competent judges of Chrysanthemums on the Floral Committee besides Mr. Douglas of Loxford, Mr. James of Redlees, and Mr. Cannell of Swanley.—EDS.]

THE controversy about the proposed Chrysanthemum tournament appears to be getting cloudy, and instead of Mr. Hinds removing the mist his last letter only adds to the fog. To borrow his own words, "a few facts sometimes dispel a great many illusions;" I therefore submit my views of this matter. The Liverpool growers subscribed ten guineas, which were divided in three prizes—first, second, and third respectively—(not a special prize of ten guineas as stated by Mr. Hinds on page 30) for twenty-four Chrysanthemums, cut blooms. The Show came off, when a grievous mistake was made and detected. The Liverpool growers then throw down the gauntlet, one of them by saying that "Liverpool as a Chrysanthemum-growing district is able to contest honestly and fairly with growers from any part." Another writer says, "If Mr. Ollerhead, or any other southern Chrysanthemum grower, has any suspicion about our honesty, they have only to give us an invitation, and we will meet them in a friendly manner next year at any Chrysanthemum show out of London, or even in London, if they make their schedules more explicit and give us a list of names, so that we may know exactly what varieties to put in our stands."

Mr. Ollerhead accepted the above challenge in a fair and explicit manner. The Editors of the Journal kindly gave space for free discussion of the subject; a list of names was accepted, and rules for judging, both of which were asked for by Liverpool correspondents, were submitted. Why, then, Liverpool Chrysanthemum growers, are you discordant and prefer meeting on "neutral ground?" Did not Mr. Ollerhead accept the ground of your own choosing when he accepted your challenge to meet "either in or out of London?"

The horticultural public now expect the contest to take place, and it is only fair that both sides should contribute to bring it to a successful issue. The fact that the Liverpool growers subscribed a first prize of five guineas last year is in no way special; many such prizes have been offered for twenty-four incurved blooms in London and its suburbs. What is now wanted is a challenge cup for the first-prize collection with a substantial money prize added, with money amounts for second, third, fourth, fifth, and sixth prizes. This would bring out a strong competition, and several exhibitors would be able to share in the honours. If after the challenge given by the Liverpool growers they fail to come forward, the florists and horticulturists of Great Britain will form their own conclusions. —FAIR PLAY.

EFFECTS OF THE FROST.

AN examination now will perhaps save much controversy later on regarding the fruit crop. I have enclosed you some fruit spurs from my Pear trees, which, though I hope I am wrong, I am very much afraid are killed. All the trees that I have examined hereabouts have the pith of the fruit spurs quite black. It may be natural, kindly give your opinion. My Peach trees in tubs, of which I had the roots well protected, are undoubtedly much injured, and they were well ripened, but save being placed closely together the branches had no protection. It will be remembered that our severest frost was on the Saturday morning the 14th ult., when the thermometers of my two nearest neighbours registered 5° and 7° below zero, and my own 6° below. The severe frost being thus earlier than in many places it might be more injurious, and what made it still worse, the snow had partly fallen from the trees the day previously.—J. WITHERSPOON.

[The fruit buds of the Pears you have sent are, we fear, destroyed. If the blossoms of similar spurs expand, which we think doubtful, the fruit will not set. Three out of the four Peach shoots sent are also killed. We regret very much to see such a grievous result of the severity of the weather.—EDS.]

ROSE GARDEN AT MENTMORE.

As the cultivation of Roses is yearly extending, and as this is the period for forming roseries and planting the beds, a reference to this imposing garden of Roses—designed and laid out by Mr. Smith, the skilful gardener at Mentmore—may be opportune. This Rose garden was completed in January of last year, and, as will be seen by reference to the plan and mode of planting, the system has been adopted of massing the very dark varieties together, such as the crimsons; also the deep pinks, pale rose colours, or white or very light Roses in separate beds, the groups being arranged so that the colours are seen to the best advantage, and that the due balance of the design is maintained. The central bed alone is planted in mixed colours, so that the surrounding beds are rendered more distinct. The beds are all on grass. The soil was taken out 3 feet deep, and fresh soil, consisting of three parts of fine old turf and one part of decayed cow dung, was employed for the Roses. After the Roses were planted in February a good mulching of rich dung was given to the beds.

The Rose garden is 130 feet in length by 88 feet in width, the round beds being 9 feet in diameter, and the segments of circles 4 feet. A is a 6 feet gravel walk all round. This walk is covered with an iron trellis 9 feet high in the centre, and the trellis covered with climbing and other Roses. B is the border where the Roses are planted for climbing over the trelliswork. C is a grass sloping bank, so that the walk is about 18 inches higher than the Rose beds. The dots on the plan represent standard Roses. The Roses for the beds were supplied by Messrs. W. Paul & Son of Waltham Cross. Some are on their own roots, and some on the Manetti stock. All have grown and flowered well. The situation is high and

open to the south and west, but sheltered from the north and east. The mode of planting the beds is as follows :—

Bed No. 1, Général Jacqueminot, Beauty of Waltham, Leopold Premier, Maréchal Vaillant, Glory of Waltham, Mdlle. Marie Rady, Madame Charles Wood, Firebrand, Etienne Levet, Sénateur Vaisse, François Louvat, Charles Lefebvre, Maurice Bernardin, and Dr. Andry.

No. 2, Mdlle. Marie Rady, Duke of Edinburgh, Charles Turner, Comtesse d'Oxford, Princess of Wales, Paul Verdier, Dupuy-Jamain, Mdlle. Annie Wood, Alfred Colomb, Prince de Portia, Jean Lambert, Star of Waltham, and Queen of Waltham.

No. 3, Général Jacqueminot, Maréchal Vaillant, Sénateur Vaisse, Beauty of Waltham, Glory of Waltham, Dupuy-Jamain, Comtesse d'Oxford, Dr. Andry, Firebrand, Baron Haussman, Maurice Bernardin, Etienne Levet, and François Louvat.

No. 4, Mdlle. Marie Rady, Paul Verdier, Princess of Wales, Duke of Edinburgh, Comtesse d'Oxford, Dupuy-Jamain, Mdlle. Annie Wood, Alfred Colomb, Exposition de Brie, Queen of Waltham, and Star of Waltham.

No. 5, Lælia, La Reine, François Michelon, Peach Blossom, La France, Madame Chirard, Mdlle. de Stella, Souvenir de la Reine d'Angleterre, Duchess of Sutherland, Baronne Prevost, André Dunand, Princess Beatrice, Duchess of Edinburgh, and Michel Bonnet.

No. 6, Mdlle. Thérèse Levet, Anna Alexieff, Mons. Woolfield, Baronne Prevost, Abel Grand, Madame Georges Schwartz, and Baronne de Rothschild.

No. 7, Alfred de Rougemont, Duke of Edinburgh, Prince Camille de Rohan, Fisher Holmes, Prince Humbert, Duc de Wellington, Comte Raimbaud, Baron Hausman, and Duchesse de Caylus.

No. 8, Duke of Edinburgh, Baron Bonstetten, Jean Cherpin,

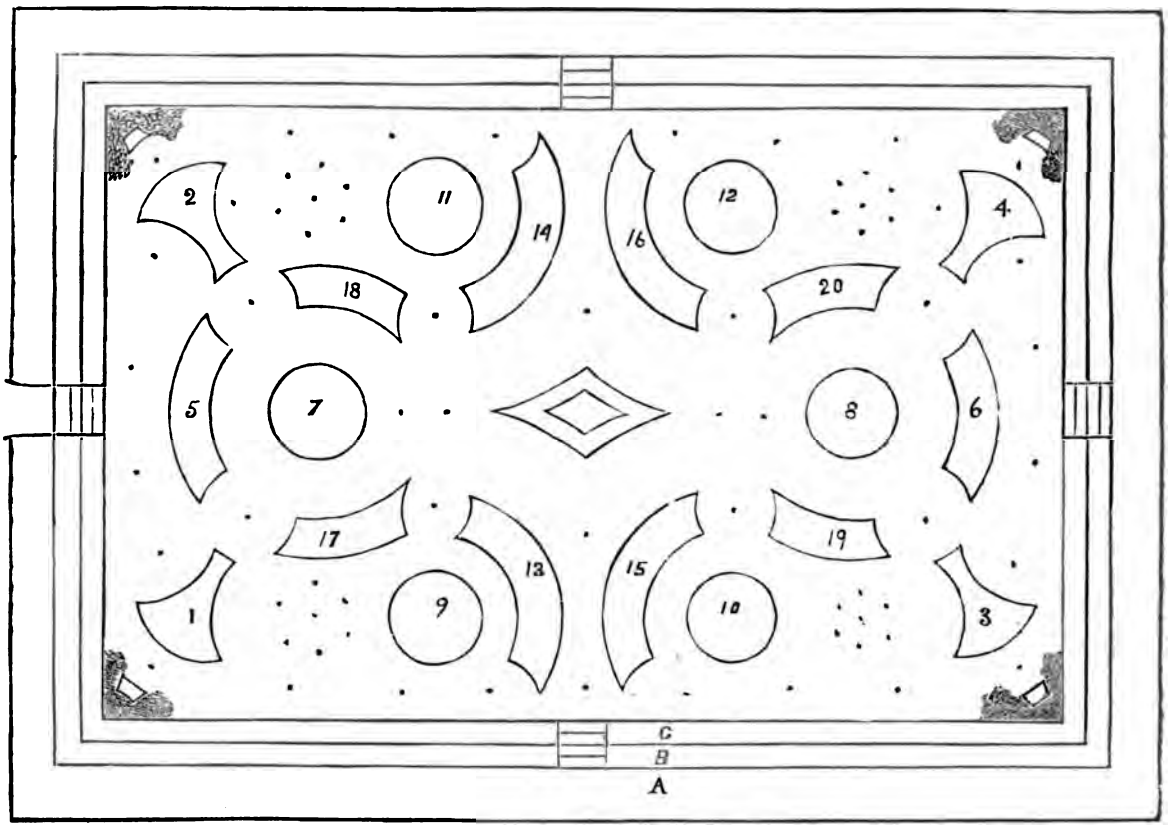


Fig. 9.—ROSE GARDEN AT MENTMORE.

John Keynes, Black Prince, St. George, Pierre Notting, and Lord Macaulay.

No. 9, Princess Louise Victoria, Queen Victoria, Olga Marix, Madame Rivers, Coquette des Blanches, Caroline de Sansal, and Madame Lacharme.

No. 10, Lady E. Peel, Mdlle. Maurin, Boule de Neige, Mdlle. Bonnaire, Amelie Hoste, Thyra Hammerick, and Coquette des Blanches.

No. 11, Boule de Neige, Louise Darzens, and Caroline de Sansal.

No. 12, Thyra Hammerick, Amelie Hoste, Elise Boëlle, Gonsoli Gaelano, and Duchesse de Vallombrosa.

No. 13, Beauty of Waltham, Mdlle. Decour, Madame Victor Verdier, Camille Bernardin, La Brillante, Docteur Andry, and Charles Turner.

No. 14, Ferdinand de Lesseps, Madame Charles Crapelet, Alfred Colomb, Général Jacqueminot, Antoine Ducher, Duke of Edinburgh, Comtesse d'Oxford, Madame Charles Wood, and Prince Eugène Beauharnais.

No. 15, Beauty of Waltham, Camille Bernardin, Prince de Portia, Madame Decour, Madame Victor Verdier, La Brillante, Prince Camille de Rohan, Dr. Andry, Charles Turner, and Mdlle. Marie Rady.

No. 16, Ferdinand de Lesseps, Maréchal Vaillant, Madame C. Crapelet, Duke of Edinburgh, Exposition de Brie, Alfred Colomb, and Comtesse d'Oxford.

No. 17, Madame Chirard, Reine du Midi, John Hopper, Anna Alexieff, Jules Margottin, Queen Eleanor, Madame Scipion Cochet, Edouard Morren, Madame Boll, and Paul Neyron.

No. 18, Paul Neyron, Paul Verdier, Charles Rouillard, Baronne Prevost, John Hopper, Perfection de Lyon, and Magna Charta.

No. 19, Madame Chirard, Reine du Midi, John Hopper, Jules Margottin, Anna Alexieff, Queen Eleanor, Madame Scipion Cochet, Madame Boll, Edouard Morren, and Paul Neyron.

No. 20, Paul Neyron, Paul Verdier, Baronne Prevost, John Hopper, Perfection de Lyon, and Magna Charta.

HELLEBORUS ODORUS.

THE Sweet-scented Hellebore, flowers at the same time as Helleborus olympicus—usually from February to April, but the plants from being taken up, potted, and flowered in gentle heat acquire an early-flowering habit, and after the first or second year they flower naturally at Christmas and the new

year. Plants in the open should, when the flower stems appear, have the protection of handlights with moveable tops for warding off heavy rains, at the same time tilting the lights or covers whenever the weather is mild. The plant is, however, very hardy, but the flowers are finer for the protection afforded them.

Strong loam appears to suits this, indeed all Hellebores, perfectly, but the plants thrive equally well in moist loamy soil

Fig. 10.—HELLEBORUS ODORUS.

enriched with leaf soil, and are the better for having partial shade in summer, though with plenty of moisture shade is not essential.

The leaves of this species are palmate, pubescent on the under side when young; segments oblong, entire at the base, but serrated towards the apex. The flower stems are 12 to 15 inches high, forked near the top, and bearing large, solitary, greenish white sweet-scented flowers; the sepals ovate oblong, and permanent. The foliage has a distinct appearance from its coarse prominent ribs, but this species is more desirable for its scented flowers than for any other attraction. It is a native of Hungary.—G. ABBEY.

FASCIATED HAWTHORNS.

IN "The Forest Trees of Britain," by the late Rev. C. A. Johns, it is said of the Hawthorn, "Not unfrequently, from having been cut down to the ground in an early stage of their

growth, numerous suckers rise from the same root, which in after years, as they increase in bulk, become partially united at their bases, and have the appearance of a trunk dividing itself into many branches." From what I have seen of Thorns growing in parks and other situations where it is very unlikely that they should ever have been cut down, I have arrived at a conclusion exactly opposite—viz., that the stem of old Thorn trees has a tendency to divide as years go by, and for a single trunk to separate into many. Such at least is my opinion; but I should be glad to have that of others. —J. BYRON, M.A.

GILBERT'S CABBAGE BROCCOLI.

YOUR correspondents, "A KITCHEN GARDENER" and Mr. Hinds, think me decidedly wrong for having questioned the propriety of a certificate being granted to the Cabbage Broccoli before it was submitted to a more severe test than tasting. That at the time of my writing was certainly the only ground I had for offering an objection. Mr. Hinds' imagination supplied the motive he implies when he asks the question, "Is the united judgment of a body of practical men to be ignored on the ground of Mr. Iggulden having a strain of bastard Broccoli which plays all sorts of tricks upon him, and which turns out to be a Broccoli one year and a Cabbage the next?" for I defy any impartial person to discover anything in my remarks to justify Mr. Hinds in asking such a question; I therefore in my turn venture to submit that his opinion "is arrived at somewhat hastily."

"A KITCHEN GARDENER" writes, "Cabbage Broccoli of Mr. Iggulden's stamp are common enough in every large quarter of Broccoli, neither are they confined to any particular variety, but like other sports they are useless for breeding, and cannot be classed as a distinct vegetable. The flavour of these too, as I have tested over and over again, do not all agree, very few of them exceeding an ordinary Cabbage, and none of them I have ever tasted come up to Gilbert's." I may ask, What does "A KITCHEN GARDENER" know about the "stamp" of those sent by me to the Editors? Your correspondent is, of course, aware that the Editors saw and tasted both mine and Mr. Gilbert's, which they state "appear identical," and that mine was "equally good when cooked, and distinct in flavour from any Cabbage." They may be mistaken, but is the Fruit Committee or any other body of men similarly placed infallible? The Committee undoubtedly consists of a body of practical men who are well aware of the vagaries of the Broccoli, or rather Brassica family, and for this reason ought to have been more chary of awarding a certificate before testing the fixedness, &c., of the "new" variety.

The Editors state that "the Cabbage Broccoli was exhibited by Mr. Pottle in 1876, but was not cooked." Was not that fact overlooked by the Committee, and ought not they to have offered Mr. Pottle another opportunity on the same footing as Mr. Gilbert—that is, of submitting cooked specimens? Otherwise it might be asserted that cooking "did the trick," thus making the chances of gaining a certificate somewhat of a lottery, in which the most ingenious wins. I find sports among two varieties of Broccoli only—viz., Veitch's Autumn and Osborn's Winter White. Those among the former are worthless; those sent to the Editors were cut from the latter. I will not answer for those left retaining their character, but shall, for the first time, give them a trial. Is not "A KITCHEN GARDENER" in error when he asserts that Broccoli sports, "like other sports, are worthless for breeding?" To prove this I need not go far from the present subject. In the first place, from what did the Broccoli originate? Old writers have proved, and as far as I know this has never been disproved, that the Broccoli has its origin in the Brassica oleracea or common wild Cabbage, "and of all the Brassica families they [the Broccoli] are the most inclined to sport into varieties." If sports are sterile, how did we derive the present excellent varieties of Broccoli? Mr Gilbert's may be quite distinct from and superior to my "mongrel," but the apparent similarity of the two is, to say the least, rather remarkable. "A KITCHEN GARDENER" briefly sums up the former's "acquisition" as follows:—It is of fixed character, hardy constitution, and perfect Broccoli flavour. Somewhat similar descriptions are often appended to exhibits placed before the Committee at Kensington, but fortunately more practical proof is usually required before a certificate is awarded. Would not "A KITCHEN GARDENER" do well to follow their example, or, in other words, wait till he has had practical proof of a vegetable being of "fixed character" before giving a testimonial? All the evidence he has submitted relative to the last-named important quality is conveyed in the vaguely convenient term, "I understand."—W. IGGULDEN, *Orsett.*

DRESSING CARNATIONS.

I AM sorry still to differ from Mr. John Slater, but his last letter, veteran though he may be as a judge, does not convince me; on the contrary, it goes still further to prove that the dresser at 5*s.* a day ought to have the prize. Because Carnations and Picotees have for so long a time been mutilated, twisted about, combed, and curled for exhibition purposes, there is no reason why some better taste should not be shown in the matter. I do not think the controversy has arisen from disappointed exhibitors. I have seen Carnations shown for a great number of years, and occasionally had to judge them. All pleasure in them to me is entirely taken away by the artificial way in which they are made up for the occasion, and others besides exhibitors feel this, even though they have not given expression to their feelings; but nearly everything said in favour of dressing has not altered the argument.

No doubt Mr. John Slater when going to a show might put on his best clothes, as mothers, he suggests, dress their children for school inspection; but I cannot see that this has much to do with the matter in hand, nor can I see the analogy. Dressing and mutilation is not allowed in some other cut flowers, why then should it be praised and the dresser fêted in Carnations and Picotees? At all events no one should be allowed to hire professional dressers; every exhibitor if they must pull about the flowers should do it for themselves.—C. P. PEACH.

ROYAL HORTICULTURAL SOCIETY—THE LATE PRINCESS ALICE.

WE have much pleasure in publishing the following correspondence, relative to the great bereavement lately sustained by Her Majesty the Queen by the death of the Princess Alice.

"Duffryn, Aberdare.

"To Her Gracious Majesty The Queen,

"We, the President, Vice-Presidents, and Members of the Council of the Royal Horticultural Society, beg to approach your Majesty with the offering of our loyal and heartfelt sympathy in the painful bereavement recently suffered by your Majesty and the Royal Family by the death of your beloved daughter, the Princess Alice, Grand Duchess of Hesse Darmstadt, who had endeared herself to all your Majesty's subjects by her noble qualities and genuine devotion to the good of all around her. We are deeply sensible how little words can do to lighten the bitterness of such a loss. But your Majesty's sorrow touches the heart of every one of your devoted subjects; and the Society we represent has received so many proofs of your Majesty's favour and interest that we cannot refrain from expressing our profound sympathy with an affliction which many circumstances have concurred to render especially poignant and trying.

"On behalf of the Council,

"January 22nd, 1879. (Signed) "ABERDARE."

"Osborne, January 25th, 1879.

"DEAR LORD ABERDARE,—I am commanded by the Queen to request that you will return to the Vice-Presidents and Members of the Council of the Royal Horticultural Society, and to accept yourself, Her Majesty's sincere thanks for the kind and feeling expressions of sympathy with the Queen in her sorrow, contained in the address you have transmitted to Her Majesty.

"Yours very truly,

(Signed) "HENRY F. PONSONBY."

REVIEW OF BOOK.

The Herefordshire Pomona. Part I. Containing Coloured Figures and Descriptions of the Most Esteemed Kinds of Apples and Pears. London: Hardwicke & Bogue, 192, Piccadilly.

THIS is the first instalment of what will be a superb work on pomology. Type, literary composition, and illustrations are all excellent; and yet there is in my opinion a great defect —a defect which will, if not remedied, materially injure the usefulness of the work, and this defect is a misleading title. Just as a flaw in the title deeds of a house prevents its sale, so will this defective and misleading title prevent the sale of this admirable work, which ought to be in the hands of every lover of and cultivator of fruit who can afford to buy it.

"Herefordshire Pomona!" But to those who do not belong to Herefordshire, and who simply connect Herefordshire with

the making of cider, the name is simply repellent. Hamlet exclaimed—

> "What's Hecuba to him, or he to Hecuba,
> That he should weep for her?"

So many a fruit lover, but who never grew or wished to grow a cider Apple, may exclaim, "What's Herefordshire to me that I should buy her 'Pomona?'"

There is indeed information given under the name of "General Notice," that "the work was originally intended to form a work of local character, as its title indicates, but that it will be more useful if its scope be made more general. It is intended therefore, *subject to the favour and support it may meet with*, to make this 'Pomona' a thoroughly English work." Exactly so, and just what one would wish; but if the local is to be lost in the national, as to the work itself, pray let it equally be lost in the title. It is not a provincial work, then let it not have a provincial name. I notice that the second part is not likely to be published until next summer; may I, in the interests of fruit culture, ask that the title be changed to the "Pomona of Great Britain?"

Having thus spoken against the title, it is pleasant to be able to say nothing against the book. The difficulty is to speak sufficiently highly of the contents of this first part. It begins with a highly interesting chapter entitled "The Early History of the Apple and Pear," by Dr. Henry G. Bull, and reveals the great research of its author, to say nothing of his evident familiarity with classical literature strictly so called, and also with English literature. I scarcely think that Dr. Bull has missed more than one allusion to Pears in English literature, and I speak as one having gone over the same ground as the learned doctor. The allusion I refer to is the "Winter's Tale," Act 4, Scene 2, where the clown numbering up his errands, after saying "Let me see. I am to buy for our sheep-shearing feast three pounds of sugar, five pounds of currants," adds, "I must have saffron to colour the *warden* pies." No doubt saffron was used as colouring matter as cochineal now is. This mention of saffron is conclusive that the warden pie was made of fruit and not meat. Dr. Bull pleasantly and scholarly quotes Homer, Virgil, Pliny, Gerarde, and many others; gives us dreamy legends and curious myths, and casts his net very wide, and might say, slightly altering Milton's words, "Whatsoever time hath drawn down from of old to this present in her huge drag-net" concerning fruits "I present to you." Dr. Bull quotes, and quotes aptly. Rome pagan and Rome papal are turned to use. Tacitus and the Sarum Missal are pressed into service; pretty early English ballads and Church historians and poets, ending with a gem of Tennyson's. There are two pages of quotations from Shakspeare and something from quaint gossipping Martin Johnson, who would fain have us believe that if we drank cider we should, in spite of Mr. Thoms and to the horror of Sir Wilfrid Lawson, live to at least a hundred years. A pleasanter, more entertaining, yet scholarly chapter than this of Dr. Bull's can hardly be imagined. It will please non-pomologists, as Izaac Walton pleases thousands who never held a rod or caught a fish.

Dr. Bull mentions that "The Apple still holds its place in the customs of many nations; that it is oracular in love matters, a love charm, or a token of affection." In East Anglia it is used to charm away warts. An Apple is cut into exact quarters, the offending warts are rubbed by each of the eight sides, then the quarters are put together and the Apple hidden in some place, which if the patient does not find his warts will be charmed away.

It is well known that ecclesiastics of old were great pomologists, even the principal cultivators of fruits in the fourteenth century. So they are in this nineteenth century. Stay-at-home men in the country naturally look for pleasures to be had near them, just as the little toddling child is attracted by the Daisy so near its little hands; and we can half forgive the materialism of those who were accustomed to place an Apple in the hand of a child when buried that it might have it to play with in Paradise, considering how many a chubby hand has delighted to hold a rosy-cheeked Apple. The child's love for this fruit is aptly noticed in the old ballad "The Jew's Daughter"—

> "She pulled an Apple red and white
> To entice the young thing in:
> She pulled an Apple white and red,
> And that the sweet bairn did win."

Next after the chapter on the early history of the Apple and Pear comes one on "Thomas Andrew Knight and his work in the orchard," and most valuable that work was. Knight, a gentleman by birth and an Oxford man by education, he, like another Gilbert White, returned to his native village there to follow the natural bent of his inclination—there to watch the mode of growth in plants, the ascent and descent of sap in trees, the phenomena of germination, the influence of light upon foliage, the formation of roots; and lastly as the result of his growth of seedlings and his careful practice of hybridisation, many new varieties of fruits, Apples, Pears, Plums, Nectarines, Cherries, Strawberries, and Currants were introduced by him. And even now, with all our French imported and named Pears, where is there a better fruit than at least one of the old Herefordshire pomologist—viz., Knight's Monarch? The life of T. A. Knight was laborious and successful. His ideas were not always correct, but he could support his theories with at least a good show of reasoning. His labour was incessant, now with Apples, now with even greater zeal experimenting with Pears. A life of labour, and labour meeting its due reward of honour, and doubtless of personal happiness; a long life, too, reaching to seventy-nine years. It is not said whether he drank nothing but cider; possibly not, or he might have lived his century! Mr. Knight introduced over two dozen Pears and nearly a dozen Apples, many of which still hold their own.

I now approach with even increased pleasure the third division of this first part of this so-called "Herefordshire Pomona"—the description and portraits of Apples and Pears. Let the reader of this bear in mind that the work is published in quarto, and that besides outlines of Apples and Pears there are three pages of chromolith plates containing charmingly drawn and coloured portraits of twenty-one Apples and two Pears, these being the exact size of the fruits. In some of the plates the stalk of the fruit with the portion of the wood and the leaves attached is also given, and also a bunch of blossom with the wood and leaves also attached. I have seen no fruit pictures equal to these, so pomologically and botanically correct, and so artistically finished. In plate 1 we have the famous cider Apple the Foxwhelp, a cluster of three Apples, and a bunch of blossom by their side. Plate 2, the summer and winter Pomeroy: the latter is one of the gems of the pictures, it and the Stirling Castle Apple being perhaps the very best. One feels almost that one could pluck these Apples from the book, so admirable is the drawing and appropriate the shades of colour. By the side of the Pomeroy is also a bunch of its blossom. Plate 3 consists of nine Apple portraits without leaves, or wood, or blossom—Joanneting, Summer Golden Pippin, Court of Wick (two), Devonshire Quarrenden, Borsdörffer, Worcester Pearmain, Kerry Pippin, and Early Spice. These are very well done, the Joanneting possibly a little shade too dark, and I never in twenty years had even in this warm Bath-like climate a Kerry Pippin of so red and rich a colour; but as a whole this plate is very good, most of the portraits representing early Apples. It seems to be glowing with summer beauty; as a lady observed on looking at it, "one can almost smell the Apples." Although we are told on the highest authority—

> "Who can cloy the hungry edge of appetite
> By bare imagination of a feast?
> Or wallow naked in December's snow
> By thinking on fantastic summer's heat?"

yet still such pictures seem to bring before us hot July, and sultry August, and gorgeous September. Plate 4 presents quite a change to our eyes, being two sober-tinted Pears, Monarch and Althorpe Crasanne, hanging as on the tree, each on a branchlet, with a blossom of each close by. The drawing and shading of colour, giving the rounding of form, are most excellent. By some this plate is much preferred to any other, and indeed they look Pears, and not pictures of Pears. Plate 5, Apples again—1st, New Northern Greening; 2nd, Spring Grove Codlin; 3rd, the Stirling Castle I have before alluded to as one of the best, and a Wormsley Pippin and leaves, this Apple over-large. Plate 6 our old, and true, and tried friend Keswick Codlin; Manx Codlin, with its queer shape and fine delicate skin; Lord Suffield, that threatens to annihilate both, certainly not a pretty Apple, but large and very good; Hawthornden, another old favourite, and almost unequalled in delicate beauty of skin and bloom; lastly, Tom Putt, richly streaked with crimson, but not the Apple called Tom Putt in the west of England, which greatly resembles Dumelow's Seedling, but of inferior flavour.

Besides the pictures there are twenty-three pages of description after the manner of Dr. Hogg's "Fruit Manual," together with accurate outlines and sections showing the seed cells.

Such is this first part of a work which will mark an era in fruit literature. I leave off reading it, in the Oliver Twist condition of wishing for more. I must repeat my earnest hope that in regard to title the provincial will be sunk in the national. The merit of the Woolhope Club would be further known, and its coat of arms and cheery motto would meet the eye of hundreds more. Its efforts for good would have a more extensive appreciation; and while Herefordshire would lose nothing, Great Britain would gain much, The Severn loses nothing in greatness by being poured into the Bristol Channel, but all looking on the latter remember the noble river at its beginning.—WILTSHIRE RECTOR.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE prolonged severe weather is telling upon those who have not made provision beforehand of the requisite number of roots of Rhubarb, Seakale, and Asparagus in safe quarters for introducing to heat as may be necessary, so as to maintain a regular successional supply. The effects of the severe weather will, it is feared, prove very disastrous, causing an unusual demand for early vegetables. The damage done to Broccolis and Cabbages and also to Lettuces is apparently considerable, hence it will be necessary to take immediate steps to provide for the future. A bed about 2 feet in height should at once be made of sweetened stable litter and leaves, placing on it 4 to 6 inches of rich soil, and sowing Lettuce in rows 6 inches apart, and Cauliflower and Cabbage between the rows, the plants of which will be pricked-off in other frames before the Lettuces have grown so as to require the whole of the space. The Lettuces must be thinned immediately they require it, so as to secure sturdy plants; and in spring when well hardened off they may be planted out on warm borders, where they will afford a supply that will prove very acceptable, particularly if any disaster has befallen the plants raised in the autumn. The ground will not be in a condition favourable for the sowing of Peas and Beans for some time; and as every day's delay now is important time lost, the desirability of making a sowing indoors of Peas, especially as there is a doubt of the autumn-sown crops succeeding, will be apparent to most gardeners. A sowing made in horseshoe drain tiles, reversed strips of turf, or in pots, and placed in a frame or cool house from which frost is excluded, is certain to prove useful. The dwarf varieties, such as Little Gem, Extra Early Premier Gem, Blue Peter, Unique, and Bijou, are all excellent and suitable when about 4 inches high and well hardened off for planting out at the foot of south walls. William I. is the best of the early Peas, and may be sown indoors for planting on warm borders. Beck's Gem Bean sown in a similar manner to the Peas will afford an early supply.

FLOWER GARDEN.

Neatness and order are requisite in all parts of the garden, more particularly in the ornamental department, but which owing to the severe weather can have been little attended to of late. The devastation caused by the snow in some localities is truly lamentable. Shrubs and trees both deciduous and evergreen are split and broken in such a manner as to destroy their symmetry, many being irreparably damaged; and where hares and rabbits have gained access, Hollies, &c., are barked above the snow line, in some instances 4 to 6 feet from the ground. The frost, too, has not been without its effect upon such shrubs as Escallonias, Garrya elliptica, Eriobotrya japonica, &c. Eucalyptus globulus is killed to the ground. It is, however, as yet too early to pronounce upon the casualties, yet it is to be feared that the injury inflicted will in many places be very considerable. Beyond the removal of broken limbs nothing can be done until the effect of the winter's severity is clearly shown by a return to warmer weather. Irish Yews, Arbor-Vitæs, and Cupressuses may be tied into form, so as to give the shrubs something like an appearance of their former selves. Alterations and planting have been suspended for some time, but immediately a change of weather occurs ground work should be pushed forward so as to have all in readiness for planting when a favourable opportunity offers. Alterations necessitating the removal of the turf should be done as soon as possible, so as to allow of its becoming re-established before dry weather sets in.

Propagation of Bedding Plants.—Preparations for this important work should be made by placing stock plants in heat, so as to afford the requisite supply of cuttings. The potting-off of Pelargoniums from the cutting pots or boxes may be proceeded with as opportunity and convenience for placing the plants in houses having gentle heat offers. For breaking the monotony of even surfaces the hardier kinds of green Dracænas, such as australis, congesta, indivisa, gracilis, and rubra, are useful; these and similar plants should be more extensively employed than is generally the case. The old stems cut into short lengths of 2 to 3 inches and placed in spent tan or cocoa-nut fibre refuse, covering them an inch or two deep and keeping the material moist, will soon start into growth in a bottom heat of 90°. These if duly potted and grown on in heat make useful plants by planting-out time. The tops of Dracænas also strike readily in brisk moist heat. The monotony of carpet bedding is much relieved by the introduction in such arrangements of the tree succulents, such as Sempervivum arboreum, S. arboreum purpureum, S. arboreum variegatum, and others, which produce offsets freely; these strike readily in sandy soil in a temperature of 60° to 65°. Chamæpuce diacantha and C. Cassabonæ are valuable for the same purpose, the former especially; they are raised from seed, which should be sown at once. Mesembryanthemum cordifolium variegatum is not to be depended on from seed, and should therefore be propagated by cuttings, which strike freely in rather dry heat of 60° to 65°. Centaureas ragusina and candidissima are readily raised from seed, but seedlings are too green to be depended upon for bedding purposes. Cuttings inserted between now and March will strike quickly in sandy soil in a temperature of 60° to 65°, being careful not to overwater them.

HARDY FRUIT GARDEN.

Orchard or standard Apple, Cherry, Pear, and Plum trees, including Damsons, succeed best when not subjected to any formal system of training or pruning; but it is desirable to examine the trees annually, thinning out any branches that cross each other, removing any decayed or dead wood, and otherwise opening the heads so as to admit light and air. If the stems and large branches are infested with moss they may be scraped carefully, and then be painted with lime and water, or if the colour be objectionable it may be toned down by an admixture of soot. The American blight (Aphis lanigera) is a dreadful pest, the worst to which the Apple is liable, and its rapidity of increase is remarkable. Paraffin applied to the infested parts is a sure remedy, it being well brushed into the parts affected at this season, and again in summer, taking care that it does not then touch the foliage.

FRUIT HOUSES.

Vines.—In the earliest house attention will be required in tying the shoots and stopping them, which must be done to one joint where the space is restricted, the axillary growths being stopped at the first leaf, and to one leaf afterwards as fresh growth is made; and if this is likely to interfere with the principal leaves the axillary growths may be rubbed off, except from the two lowest leaves, those above the fruit being stopped to one joint. It is of the utmost importance that the principal foliage be fully exposed to light and air, overcrowding and overcropping being highly prejudicial; at the same time very close stopping is not to be recommended where there is room for extension, as an extension of foliage promotes corresponding root-action, therefore preserve all the foliage consistent with its full exposure to light and air. Thinning should be commenced when the berries are about the size of small peas. Vines in pots will require copious supplies of liquid manure, thinning the bunches somewhat freely so as to induce larger berries, not, however, going to the extreme of making the bunches loose, though that is better than small-berried clusters. The temperature should be maintained at 65° at night, falling to 60° on cold mornings, 65° to 70° by day, admitting air at 75°, increasing the temperature with sun heat to 80° or 85°, closing the house at 80°, at which time well damp every available surface. Damping is also necessary in the early part of the day. Great care is requisite in ventilating. During such weather as we have lately experienced air should be afforded in moderate quantity—a little at a time, so as not to reduce the temperature, only to prevent its rising too suddenly and injuriously high. Inside borders should have a thorough watering with liquid manure —1 lb. of guano to twenty gallons of water, applying it at a temperature of 85° to 90°. Houses in which Vines are in bloom should have a steady night temperature of about 65°, 70° to 75° by day by artificial means, and 5° to 10° more from sun heat; Muscats 5° higher all round. Black Muscat and other varieties liable to set indifferently may be assisted by tapping the bunches every day, or more certainly by applying ripe pollen, drawing a brush lightly over the bunches. A constant circulation of dry warm air is conducive to a good set, and it is advisable not to stop the growth closely during the setting period.

Vines started early in the year are breaking strongly. Syringe the rods three times a day until the bunches are formed, when syringing must be discontinued, but maintain atmospheric moisture by damping every available surface three times a day. The temperature should be increased to 55° at night and 60° to 65° by day, with an advance from sun heat to 75°, with ventilation in accordance with the state of the external air. Avoid damping the hot-water pipes when they are highly heated, the steam arising therefrom being very different from that given off by cooler surfaces. Keep up a supply of ammonia in all the houses at work by turning over the fermenting materials and adding fresh horse droppings; or if this be objected to the house may be sprinkled with guano water in the afternoon, the evaporation troughs being kept filled with the same. Ammonia vapour not only aids the growth and texture of foliage but keeps red spider in check.

Houses for affording ripe Grapes in July should now be started. There is no need to cover the border with fermenting material, but outside borders should be covered with leaves or litter. A

bed of fermenting material within the house conduces greatly to a free and regular break. Syringe the rods three times a day, maintaining a temperature of 50° at night, and 65° by day from sun heat. The inside borders should be watered with liquid manure at 90°, and repeatedly if necessary, so as to bring the soil into a thoroughly moist state. Vine eyes may now be inserted, using pots, pans, or square pieces of turf. Select firm well-ripened wood, filling the pot or pan with rich friable soil, inserting the buds with a pinch of silver sand and half an inch beneath the surface, plunging the pots, &c., in a bottom heat of 80°.

Peaches and Nectarines.—When the fruit in the earliest house is fairly swelling a few of the smallest should be removed, avoiding wholesale thinning or disbudding, removing the badly placed buds and fruit in the first instance. Should aphis appear fumigate moderately with tobacco on two consecutive evenings: an overdose will bring off the fruit and injure if not cause the leaves to drop. Ventilation in frosty weather must be carefully done; cold draughts check the development of the foliage and the swelling of the young fruit. In clear frosty days it is safer to allow the temperature to rise a little higher than to open the ventilators too wide so as to reduce the heat. Inside borders should be daily supplied with water: weak liquid manure will aid the fruit swelling in its first stage, especially when the trees are weakly. Syringing must be practised morning and afternoon when the weather is favourable, maintaining the night temperature at 55° to 60°, it being safer to allow the temperature to fall to 50° on cold mornings than to keep it up to a high figure by hard firing at night during severe weather. Let 65° be the maximum from fire heat by day, with an advance from sun heat to 70° or 75°. The trees in the house started early in the year will be in flower, when syringing must cease, but maintain genial moisture by sprinkling every available surface morning and afternoon in bright weather only, the night temperature being kept at 50° to 55°, falling to 45° in cold mornings; 55° as a maximum from fire heat by day, 65° from sun heat, and with full ventilation 70° may be allowed. Do not neglect to shake the trees or trellis with a view to distribute the pollen, not failing to resort to artificial impregnation if necessary, applying the pollen on a fine dry day with a camel's-hair brush or feather to the stigmas. Avoid no opportunity of ventilating freely, avoiding cold draughts, and equally so a confined atmosphere, which is fatal to success. The house for affording ripe fruit early in July should be closed, syringing the trees two or three times a day, turning on the heat in the morning for an hour or so; but the temperature by artificial means must not exceed 50°, 65° from sun heat, and at night not more than 40° by fire heat. The inside border must be well watered, if need be repeatedly, to insure its thorough moisture throughout. The flower buds in the later houses, notwithstanding the severe weather, are swelling fast, therefore ventilate freely in bright weather so as to retard them as much as possible, not omitting to water inside borders if they show the least indication of dryness.

PLANT HOUSES.

Stove.—Young plants of Franciscea, Ixoras, and other plants of an evergreen character requiring more pot room, should have a shift; but they ought not to be disturbed until the roots are active, not removing any large extent of soil, but only any that is loose at the top and side of the ball not occupied with roots. The soil employed should be warmed, and should be pressed firmly into the pot. Peat with about a fifth of silver sand is a suitable compost for Ixoras; turfy loam with a fourth of leaf soil answers for Franciscea. Start a few more Achimenes and Gloxinias and some Caladiums, potting them in turfy loam. Marantas requiring a shift afford it at once, draining the pots well, as the plants require free waterings; they thrive well in equal proportions of peat and loam. Alocasias of the metallica type do well in two parts of fibrous peat, two parts of chopped sphagnum, one part of old dried cow dung, and a sixth part in equal proportions of sand and broken pots. A. macrorhiza variegata requires fibrous loam with a third of well-decayed manure. Amaryllises that have been kept cool, and it may be dry, may be placed in heat. If the soil is kept moist and a night temperature of 60° is afforded they will soon throw up the flower scapes. Gesneras of the zebrina type in flower should be placed near the glass, when the flower will be all the brighter; they, with winter-flowering Begonias, should not be overwatered, and should be afforded the driest part of the house, as when grown in moist heat the flowers are not durable in a cut state. Such Gesneras as Cooperi and Donckelaari that were dried off in autumn should be potted the same as Gloxinias, and placed near the glass in the warmest part of the stove. Aphelandras coming into flower have the colour intensified by a light situation. Do not overwater Gardenias, as if they lose the roots the flower buds will drop. Similar remarks apply to Tabernæmontanas. In cutting Euphorbia jacquiniæflora, if too great length of stem be not removed the plants will produce a second crop of flowers, as also will Centropogons. The old but very useful Euphorbia splendens, having been kept dry for a time and comparatively cool, will if now placed in heat soon push a quantity of bright flowers, which are very useful for buttonholes, &c.

Forcing Pit.—Introduce another batch of Rhododendrons, Ghent and other hardy Azaleas, with such plants as Deutzias; also Prunus, Lilacs, Guelder Roses, Laburnums, double Thorns, double-flowered Peaches, and other kinds of hardy shrubs, so as to keep up a succession of flowers for cutting; also Pinks, Tree Carnations, Hoteia japonica, Spiræa palmata, Lily of the Valley (clumps now starting freely without bottom heat), Dielytra spectabilis; and batches of Hyacinths, Narcissus, Tulips, Jonquils, &c., so that there may be no falling-off in the succession. A few more Indian Azaleas should be placed in heat, selecting the earliest-flowering kinds; also such plants as Cytisus, Acacias armata, longifolia, and magnifica that come into flower quickly in gentle heat, and a good batch of Roses in pots.

TRADE CATALOGUES RECEIVED.

H. Cannell, Woolwich.—*Illustrated Floral Guide and Plant and Seed Catalogue.*

S. Dixon & Co., 34, Moorgate Street, London.—*Catalogue of Vegetable and Flower Seeds.*

Drummond Brothers, 52, George Street, Edinburgh.—*Catalogue of Seeds, and Lists of Roses, Liliums, &c.*

W. P. Laird & Sinclair, Dundee.—*Catalogue of Seeds and Ornamental Trees, Shrubs, &c.*

George Cooling, Bath.—*Catalogue of Vegetable and Flower Seeds and List of Gladioli.*

H. C. Smith, 10, Castle Street, Long Acre, London.—*List of Garden Requisites.*

William Potten, Sissinghurst, Staplehurst, Kent.—*Catalogue of Garden and Farm Seeds.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

TREE OVERHANGING A NEIGHBOUR'S GARDEN (*One in Trouble*).—Ask your neighbour to cut off the overhanging branches; if he refuses you are legally entitled to remove the overhanging portions.

RATING GARDEN GROUND (*Idem*).—You must consult your attorney.

A CHEAP PEACH HOUSE (*R. H. A.*).—The sliding hinges are of wrought iron, and made by a country blacksmith. They consist of a pin screwed to the back wall plate, and a socket screwed upon the outside of the upper part of the ventilator; the sockets are each 2½ inches wide and three-quarters of an inch thick, with three holes to admit screws. The sashbars are 2½ inches deep by an inch wide at the bottom of the rebates. The rafters are 3¾ inches deep and 2 inches wide.

LINNÆA BOREALIS (*Jennie*).—It is found in one or two localities of the Hebrides. Miss C. F. G. Cumming says, writing about Dufftown, "Only on one small patch of moorland are those fairy blossoms to be found—a safe retreat, happily known to but few too covetous admirers."

ISLAND OF ST. HELENA (*Emigrant*).—We think you will not find the expense of housekeeping low there. We remember a dollar being refused for three dozen of Pears; 10*s.* being paid for a pot of Raspberry jam, and 20*s.* for a bushel of Potatoes; those prices, however, are exceptional. Buonaparte first resided at "The Briars," purchased for £600. We regret that the Willows planted round his tomb were removed alive and taken to Paris.

POTATOES FOR FIELD CULTURE (*G.S.*).—You cannot plant better varieties for late use—quality being the first consideration—than York Regents and Paterson's Victorias. The quantity of seed required per acre depends entirely on the size of the sets and the distances at which they are planted; from eight to ten sacks—16 stones of 14 lbs. to the sack—per acre are usually planted. The produce depends wholly on the fertility of the soil and the season. On soil such as you describe fifty sacks (5 tons) per acre would be a good average crop.

COMPOSITION FOR TREES (*Amateur*).—Dissolve one pound of soft soap in half a gallon each of tobacco water and rain water, adding flowers of sulphur, lime, and soot in equal parts, so as to form a paint-like composition that may be applied with a brush. When the branches of trees are wet with dew or made thoroughly wet with a syringe, and freshly slaked quicklime is dusted amongst them, it will adhere to the twigs and preserve many buds from birds. It is also useful for destroying moss on the trees. The lime must be applied liberally and during a still day: any falling to the ground will benefit the soil and trees.

VINES AND PLANTS IN GREENHOUSE (*F. J.*).—Vines on the roof of a greenhouse afford too much shade for summer-flowering plants, but they do not prejudicially affect plants that flower in spring. With a moveable blind you can afford shade at pleasure, but with Vines the shade is permanent and obstructs the light on dull days as well as when the weather is bright. Such plants as Ferns, fine-foliaged Begonias, and Camellias succeed under the shade of Vines, but ordinary summer-flowering plants do not thrive satisfactorily.

LUMINOUS PLANTS (*H. R.*).—There are many in India besides those you mention. A Grass called there Jyotismati, but by botanists Anthisteria ananthera, grows in the hill country about Almorah and elsewhere, and emits a very powerful phosphorescent light. The Dictamnus Fraxinella also emits so powerful a light that the fire-worshippers reverence it. The light proceeds from a volatile phosphorescent oil which the plant secretes.

AZALEAS UNHEALTHY (*F. S. A.*).—Indian Azaleas usually shed a great portion of their foliage during the winter. There are slight traces of thrips on some of the leaves sent. Your plants may recover as the season advances; if they do not we shall be glad to aid you if you afford us full particulars as to the condition of your plants, stating also their age, size, size of pots, when potted, and nature of the soil employed.

PAUL'S "ROSE ANNUAL" (*H. P.*).—Write to Messrs. W. Paul & Son, The Nurseries, Waltham Cross, Herts.

REPOTTING CAMELLIAS (*W. H. C.*).—Repot your Camellias early in March, shaking off any loose soil from the roots; take especial pains with the drainage, which, from what you say about the leaves falling off, we suspect is now defective, and press the new soil into the pots firmly, taking care to leave it quite half an inch below the rim in small pots and an inch in large pots, to afford space for watering effectively; yet do not overwater at any time, but especial caution must be observed until the roots are making way in the fresh soil. Frequent syringing does much good to the new growth, which will come strongly and well in a cool house. A mixture of equal parts of old turfy loam and fibrous peat will form a suitable compost. The plants also grow well in pure fibrous peat or loam if it be really of good quality, sound and sweet.

TEMPERATURE AND SOIL FOR ORANGES (*Idem*).—A low temperature is probably the cause of the falling-off of your Orange blossom. Oranges should have a winter temperature of 50° to develope the full flavour of ripening fruit and to insure the setting and swelling of young fruit. The best time for repotting is immediately after the picking of a crop of ripe fruit, and the best soil is equal parts of very old manure and old turf sods broken roughly into pieces, but not sifted. The compost should be made quite firm between the old ball of soil and the side of the pot. Let the drainage be plentiful and thorough.

COB NUTS AND RASPBERRIES (*Observer*).—Cob nuts planted 10 feet apart will not attain their full growth under ten years, and are not really profitable till some six or seven years after planting, when each bush may afford you five or six pounds of nuts provided the necessary skill has been devoted to their culture. Raspberries should not bear fruit till the second year after planting. As to the produce of Raspberries, your question as put is unanswerable. By the term "tree" we do not know whether you refer to a single cane or to a bush composed of several canes.

HOT-WATER APPARATUS BOILING OVER (*W. E. P.*).—There is no remedy but to attach more piping to the boiler, so that the water will not need to be heated to so high a temperature to maintain the required temperature of the house; and by having a damper to regulate the draught, the fire being kept moderate and the combustion slow, the fire may be safely left unattended from eight to ten hours. The fire is too large and the draught too strong; diminish both.

FERNS FOR ROCKERY IN VINERY (*Mr. Newman*).—Acrophorus hispidus; Adiantums affine, assimile, cuneatum, formosum, hispidum, and setulosum; Aspleniums dimorphum and Veitchianum; Davallia canariensis, D. tenuifolia, D. dissecta; Doodia aspera; Lastrea decomposita, L. elegans; Nephrodium molle, and var. corymbiferum; Onychium japonicum; Cyrtomium falcatum; Polypodium pectinatum; Pterises scaberula, cretica albo-lineata, umbrosa, tremula, hastata, serrulata, and vars. cristata, Leyi, and polydactyla. For cutting the Adiantums and Pterises are most suitable, and should be grown in quantity.

PAINT FOR BACK WALL OF GREENHOUSE (*Belfast*).—Stone colour is the most suitable. The Hoya is probably shaded by other climbers, otherwise it would flower freely though the soil is too heavy, being more conducive of growth than flowering. An admixture of lime rubbish and broken pots would check the growth and tend to better-ripened wood, but what is wanted is more light.

EXHIBITING ZONAL PELARGONIUMS (*X. Y. Z.*).—If by the "best six trusses" of flowers single trusses are meant, then such an addition as you name of filling the bad centre of one truss with another truss from the same plant would disqualify, because the cluster then exhibited would not be a "single" truss; but at the same time we can quite understand that such an addition might be made by an exhibitor without any idea of committing a fraud. In the National Pelargonium Society's schedule the stipulation is for three trusses of each variety, and a more imposing display is produced than if single trusses only were exhibited.

CAULIFLOWERS AND BROCCOLI FOR SUCCESSION (*A Lady*).—Walcheren Cauliflower sown in February will come-in in July and August; sown in early April heads will be produced in September, and a sowing made at the beginning of May will afford heads at Michaelmas onwards. Veitch's Self-protecting Autumn Broccoli should be sown in early April for affording a supply of heads in December onwards; and if at the same time be sown Cooling's Matchless, Leamington, and Lauder's Goshen Broccolis for a supply in spring up to May, there will be no difficulty in keeping up a succession.

CAMELLIA BUDS DECAYED (*Ashdown*).—The evil of which you complain is due, we think, to the excessive moisture of the house consequent upon the starting of the Vines at the time the Camellias are swelling the blooms, when they should be kept dry as far as syringing overhead is concerned; or it may be due to the exuberant growth, the blooms in that case not opening, for which we know of no remedy other than to restrict the roots so as to induce better ripened wood.

MR. BEATON'S FROST PREDICTION (*E. W.*).—The prediction to which you refer—and which was observed in the *Times*, *Morning Chronicle*, and other daily papers at the time as a remarkable one, inasmuch as not only the exact day of the commencement of the severe frost of 1856 was foretold by Mr. Beaton two months before, but also the time of its duration—first appeared in the *Cottage Gardener* on November 7th, 1855, in the following words:—"We shall very likely not have much winter till after the middle of January, and then we may have six weeks of it as hard as we had in 1830. Now, I challenge all the almanacks about my estimate of next winter; and having been a private Murphy about the fine weather in October I think I have some claim to urge on plantings of all kinds, and to have all finished before the 15th of January at the furthest, as I expect this great frost will come just about that time." You can only see the original prediction by referring to vol. xv. of the *Cottage Gardener*, as the number in which it appeared has been out of print long ago.

TREATMENT OF BULBS (*C. U. A. C.*).—Pot the bulbs and other plants as you propose, and cover the pots with cocoa-nut fibre refuse, but do not place them on the flue; a cool frame would be much preferable. Tulips may still be planted out of doors when the weather and soil are favourable.

NAMES OF PLANTS (*C. C. F.*).—1, Asplenium bulbiferum; 2, A. flaccidum; 3, A. Belangerii, syn. Veitchianum; 4, A. alatum; 5, Polypodium appendiculatum; 6, Nephrolepis tuberosa; 7, Nephrodium molle. (*G. H.*).—Your plant appears to be a Geum, but it is impossible for anyone to determine the species from such an imperfect fragment without flowers. We are unable to answer your other question. (*G. H., New Zealand*).—Casuarina quadrivalvis. (*S. L., Colchester*).—Flower much withered. It appears to be a pale variety of Masdevallia picta.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

BREEDING AND REARING OF FARM HORSES.

THE breeding of draught horses has for a long time been carried on under great disadvantages generally, chiefly on account of the want of a reference as to the pedigree of the different animals both male and female, and in the absence of a record of the previous parentage of horses in former generations. The result of breeding has been attended with so much uncertainty that it has gone far in the estimation of some persons to induce them to doubt the principle which we wish now to enforce, that "like begets like," which is certainly correct, whether we apply it to the production of horses as to excellence of form, size, and constitution, or as to the inheritance of defects and tendency to disease as well as infirmity of temper, commonly called vicious. In commencing breeding draught horses for the home farm we should have some well-defined object in view as to the sort and style of horses which we require to raise. In making a selection of stock or shed animals we cannot do better than be guided by the intelligence of those who have for a lengthened period given their attention to the subject, and made large outlays of money in the purchase and selection of a style and type of horses best adapted for the draught and tillage work of the farm.

For many years the horses most in request were the black and brown animals, called the horse of the shires, bred and reared upon the marsh land and low meadows of the chief river valleys in the counties of Cambridge, Lincoln, Derby, Norfolk, Hunts, Beds Leicester, Cheshire, Rutland, Notts, the Vale of Aylesbury, and parts of Warwickshire, and Northamptonshire. We well remember that we used to obtain this sort of horses for our own use five and forty years ago from Rugby fairs in Warwickshire; we, however, now look for the Clydesdale or Suffolk bred stock, and these two breeds are those to which prizes have been awarded in preference to others at the meetings of the Royal Agricultural Society of England As it is of great consequence for the managers of home farms to know where to obtain the best stud horses, we venture to recommend that they should be obtained from some of the stud companies, such as Welshpool, Tylde, Bishop Stortford, Crewe, and others; but probably better than any of these is the Worsley Hall stud, the property of the Earl of Ellesmere, which was started in the year 1874, and has been conducted most judiciously and at great cost up to the present time. The stud lately consisted of twenty stallions of different ages, many of which are let to agricultural societies, and noblemen and gentlemen who desire to improve their horses upon their home farms and the horses of their tenants. As a proof of the value of this stud a draught sale from which took place in February, 1878, consisting of forty-three animals, many of them being foals; yet they reached the value of £148 each upon the average, and it is his lordship's intention to hold such sales every two years. To further show the value of this stud, it has been wonderfully successful during the past three years in obtaining prizes at the Royal Society's meetings at Birmingham, Liverpool, and last year at Bristol, where his lordship obtained two firsts, one second, and three third prizes for his horses. The stud companies are now supported by a stud book for horses of pedigree (upon something like the same principle as the "Short-horned Herd Book,") the Earl of Ellesmere being the President, and Earl Spencer the Vice-President. No one can doubt the value of this step, as it must undoubtedly add to the value of the breed, because it will include only animals which can be relied upon as to parentage. The Secretary of the Society is Mr. Sexton, of Wherstead Hall, Ipswich, who will be very pleased to give all

needful information. The entries in the stud book up to a late date had reached 1800, and it is hoped that the first volume will be published before the next Royal Show. Any noblemen or gentlemen desiring to commence breeding horses of the best style and highest value, both in money or for practical objects of tillage and draught, should give from £150 to £200 each for the two best brood mares or fillies to be had, and send them to one of the best stud horses in the kingdom. In support of this idea we would only say that the money laid out in the first cost must answer a good purpose with ordinary care and management, seeing that the best stock are no more costly to manage or to feed, nor more expensive in other respects, whilst the produce of them will always prove valuable in proportion to their pedigree and the care taken of them.

Having thus referred to the style of horses we recommend for the home farm we must now state the points they should possess. The feet should be firm, deep, and wide at the heel; the pasterns not too long or straight, flat bone; short fetlock and knee. A stallion should not measure less than 11 inches below the knee, and girth from 7 feet 9 inches to 8 feet 8 inches; should not stand more than 17 hands nor less than 16½ hands; should have wide chest, shoulders well thrown back, head large and masculine without coarseness, full flowing mane, short back, large muscular development of the loin, long quarters with tail well set on, good second thighs, large flat clean hocks, plenty of long silky hair on legs—or to sum up in a few words, a farm horse should be long, low, and wide, and thoroughly free from all disease. Action also is a main point, and for farm work it is essential the horse should be a good mover, and to test this when required to trot it should have action like a Norfolk cob.

The two breeds of horses which we recommend for the home farm are the Clydesdale and Suffolk. To the former, however, we give the preference. It is essential that the mare should be selected of the desired stamp and as perfect as possible, for it is thought that the excellence of the progeny will depend more upon the dam than the sire; there are, however, many experienced men who consider the sire as being most impressive. The animals should both be young and in good health and full of vigour, it being a recognised fact that most of the infirmities from which horses suffer are hereditary, including a tendency to throw out side bones. Many persons breed from mares when by age or otherwise incapacitated for work; but it is a serious mistake, for we are of opinion based upon experience that mares may be bred from with the greatest advantage at three years old, and if properly managed will not be injured for working upon the farm. We have found no more danger attending parturition in the case of young mares than there is in that of older animals. The period of gestation in mares is about eleven months, but sometimes varies a little, and it is important that whilst pregnant they should be kept in good useful condition, because when ill fed they are unable to sustain the work of the farm and are likely to suffer from abortion, and no animals suffer more from the ill effects of a premature birth than mares. We have always found that brood mares may be worked if properly cared for by the teamsmen without injury up to the time of foaling, but they ought not to be tethered in a stable with other horses when that time approaches, but should be provided with a comfortable loose box some time before the premonitory symptoms of parturition are apparent. We believe that more mares receive injury in the company of other horses in the stable than they ever do in field tillage work if properly cared for. We, however, object to heavy draught in carting work after they are half gone in pregnancy. The box for mares to foal in should be roomy and not less than 13 feet square, being filled-in at the bottom with earth about 1½ foot in depth, and littered with straw as cleanliness requires; that the manure be removed daily as in a stall, but the urine will be absorbed by the earth and turned to good account, as we have found from practice. But the theory of this matter is well pourtrayed by the experiments of Dr. Voelcker, who has given us an account of the chemical changes which take place when liquid manure is in contact with soils. He ays: "Passed through or into clay, loamy, and calcareous soils, liquid manure leaves a considerable quantity of ammonia in the earth; it also leaves a portion of potash and phosphoric acid." Sandy soils, however, retain from liquid manure but little either of ammonia or potash; but the greatest of all the advantages is that the strong loamy earth not only absorbs the urine but it fixes and deodorises the ammonia, and renders the boxes healthy and the air pure. With respect, however, to accommodation for mares at foaling time nothing answers better than a small barn mow, or if large and roomy it may be partitioned temporarily with strong larch poles if more than one box is required. We must observe that there is always some danger attending parturition, and it is more so when the mares have led a lazy life in good pastures and are in high condition, as false presentations will then frequently occur, and assistance should be obtained from a veterinary or other competent person.

WORK ON THE HOME FARM.

Horse Labour should now be continued, even during frosty weather, because first it is essential to the horses' health, and secondly because in the varied operations of a well-conducted home farm there is either work requiring to be done immediately, or important matters may be carried out in anticipation of the coming spring. With respect to the first point, there can be no doubt that when horses are allowed, and particularly aged animals, to stand idle in their stalls it is sure to result in swollen legs or various other ailments. If horses are well fed they must be regularly worked, even if only light work sufficient for exercise is adopted. Secondly, by anticipation of the coming seed time there are various jobs for the horses to do now which will prevent their being taken from the field during the early spring. Dung from the yards and cattle boxes if laid out now whilst the ground is frozen will go much farther than after being allowed to waste and get rotten in the heap; in the event, however, of dung being required to be laid out for early potatoes or mangold it must be heaped ready for planting time, unless the land has been previously stetched in readiness for receiving the manure. In such case the work will be forwarded by laying out the dung during frosty weather and spread between the hills, so that by reversing the stetches when favourable weather arrives the work will be found more forward. As soon as the weather is open and the land fit for ploughing, and where old saintfoin or two-years clover lea is intended for oats or peas, the land may be ploughed with the double furrow plough, and the presser following will prove economical. Upon all but the strongest soils two horses only will be required to the double furrowed plough, which is a great economy compared with what we often see, and when we have horses of sufficient weight and power and in good condition the work is comparatively easy to them. It will be necessary now to decide the sort of peas to be sown, as the very first week that the land will work it should be done. If it is required to grow turnips after the peas the early Dun pea is the best to sow by drilling 3½ bushels per acre. If the land is to be artificially manured one and a half of nitrate of soda, 1½ cwt. bone phosphate, and 1 cwt. of kainit per acre should be mixed and sown by hand behind the drill, the harrows following; the manure then falls into the groves made by the seed tubes and shares, and is buried in direct contact with the seed.

Hand Labour is now employed in connection with threshing. We are at present threshing by steam power a barnful of peas, another of barley, and a large rick of drege corn is to follow; therefore some of the men will be employed in ricking the straw and haulm, as peas haulm and casing are good for horses. The winnowing and cleaning of corn fit for sale is often done separately, but it should be done simultaneously. In threshing the corn, as done by such machines as those made by Clayton and Shuttleworth, there is no separate winnowing, the corn all being delivered in different sacks—head corn, seconds, and tailing, and if it is required each sackful weighed off at a given weight instead of being filled and passed on by measure. After the severe, and at the same time changeable, weather which has prevailed for the past six weeks it is more than probable that some of the turnips and Swede crops will be seriously injured, and should this damage proceed and extend it will prove a serious loss to all who have a full stock of sheep; it will, however, be chiefly in cold strong soils where the greatest injury will probably occur, in which case we advise that when the weather becomes mild and open the roots in the field should be examined, and if found to be decaying the roots should be taken up with all speed by all the men and women who can be spared on the farm, and have the decayed roots cut off and the bulbs heaped in the field ready for use. This will prevent the mischief extending for a considerable time; if, on the contrary, the bulbs are allowed to remain in the land the rot affecting the roots will speedily render them useless. All the young stock of horned cattle will now require especial attention, as well as the dairy cows. Mixed straw and hay chaff with pulped or grated roots form the best food for all, particularly for animals which are in calf, and when fed twice a day with moderate quantities it is better than giving roots and fodder separately, except cabbage, which is good in all weathers. The down flocks are now lambing, and will require attention as usual in the lambing fold. Cabbage is the best vegetable food they can have. Cut roots given in the lambing fold should be avoided, as we have known many deaths occur to ewes which have recently lambed because they eat them too fast, and overloading the stomach with cold roots is sure to injure the ewes more or less, although they may at the same time have a fair allowance of hay and straw chaff. Fatting oxen and heifers should now receive Swedes as root food, reserving the mangold for the spring and summer.

FAMOUS POULTRY YARDS.—No. 3.

PATSHULL PARK (THE COUNTESS OF DARTMOUTH).

THE last poultry yard we described was one in which much has been done with few visible appliances. We now come to one on a scale of princely magnificence. There are, of course, only very few fanciers who have anything like the space or convenience for poultry culture on a grand scale which Patshull affords, and consequently few who can expect to imitate the arrangements of its

poultry yards, but to those few we would hope that some account of them may be an incentive to give an eye to their feathered stock.

Where all else is cared for and well managed—stables, hothouses, the model farm and dairy—it is common to see the poultry in hopeless confusion. It has often distressed us, as enthusiastic fanciers, to go through the yards attached to many a large establishment, and to find them, it may be, constructed in the most costly way, and believed by their owners to be faultless, yet utterly unfit for their purpose, while hundreds of acres of lovely wood and park, where the birds might luxuriate and thrive and live on half the food they consume in elaborate pens, are made of no avail.

The great charm to us of the Patshull yards is that in their arrangement, utility and ornament are most perfectly combined. If we forget not, their origin was not primarily the love of fancy birds, but the exigencies of Lady Dartmouth's *chef de cuisine*. The house was first well supplied, and thence grew the additional interest of keeping highly bred and exhibition birds. We have elsewhere seen well-planned rows of model yards, where all was the pink of neatness, and all the birds looked ready for the show pen, but in these establishments there has often been a lack of the appearance of work and business; we have guessed, in fact, that few of the winners were reared on the premises. Other fanciers again, who may be among the most successful of breeders, keep their birds so roughly scattered among farm buildings and plantations, and the varieties so confused, that it is impossible to have any good view or idea of the stock. The beautiful effect, too, of birds is, as we have often remarked, greatly enhanced by numbers, especially so when many of one kind are seen together. At Patshull you can at once see that birds are reared by the hundred in the most natural way over the broad acres of the park, and at the same time you can view at a glance dozens of select champions in their long rows of show yards. We had seen the establishment before this winter with a not less numerous stock, but that was before the days of Mr. Martin's *régime*. Great things had meanwhile been done. One immense new block of houses and runs has risen, other old-fashioned yards have been adapted to modern requirements, and complete order and system have been infused into the whole concern. To manage such an establishment well there is need of really administrative talent. We have described other poultry yards from an hour's stroll round them; to see these required a morning's and afternoon's drive, and even then we omitted some of the outlying runs at lodges. We will attempt to relate in order what we saw last month. Much might be written about Patshull in general, its terraced gardens and the lovely view from the house across the lake, but we must now confine ourselves to the poultry yards.

From the great entrance to the courtyard a broad drive descends; on each side stretch out smooth lawns to shrubberies and grounds beyond covered with grand forest trees. Here the first birds caught our eye—a pretty troop of White Yokohamas—the cocks with flowing tails, rushed across the road and vanished among the trees. Then we came to Lord Dartmouth's model farm; here are sent birds by the hundred, the useful qualities of which are greater than their exhibition beauties. Such a place where many a faulty bird which would cumber the show runs can be sent is a great economy for a large household. Some of them live in divided and well-arranged abodes, once those of the fancy stock; others were scattered over the surrounding fields—their number seemed, as on a former visit we had found it, to be legion. Our errand, however, was to see the choicest of the stock so we did not stop here.

Further on we reached Snowdon: it is a picturesque place. A few cottages cluster round an old-fashioned homestead, to which a rough lane leads up. The sliding doors of a barn were pushed back, and through it we found ourselves in an immense partially grass-grown yard, surrounded by walls and buildings. Here was a sight indeed—some fifty young Dark Dorkings, cockerels and pullets. In general we believe they ran out even beyond this yard, but the fields were newly sown and they were temporarily confined. There were some splendid birds among them for shape, size, and colour. We specially admired the rose-combed cockerels. At Oxford we had seen a capital pen of this variety shown by Lady Dartmouth, but here were six or eight grand cockerels together. The breed seems to revive in a phœnix-like manner under Mr. Martin's auspices. When he managed the yards of Linton Park Lady Holmesdale's strain of them was famous; then we remember the wonderful cock pourtrayed in the "Book of Poultry," which Mr. Martin showed himself; then at Little Ness grand birds appeared, and now again at Patshull. We have a few ourselves, but came home quite out of conceit with them. The bloom and condition of this yardful of Dorkings was beautiful, and we revelled in the sight. We now returned past the farm, and thence past the house to Wildecot, another poultry colony on the other side of the park. Here is the finest and most complete range of poultry houses, and here were most of the exhibition birds. Many were then at Birmingham, but this seemed to make little difference among so many. We remember Wildecot in far different circumstances, and here it was that we were struck with the great improvements that had been made of late. The success has been in the adaptation of what was ready made to poultry requirements. All the best yards we have ever seen have been clever adaptations. We must not forget that Lady Dartmouth does not merely look on at the work of others, but is a thoroughly knowing fancier, enters into every arrangement of her yards, and once directed them entirely herself. The yards of Wildecot are divided by one of the park roads. We will describe one side first. We enter through a gate, and on the left are two substantial brick and tiled houses, each with a good run. In one of them was a grand Dark Dorking cock, winner of the cup at Newport and first at Cardiff. He was in wonderful plumage, a bird of moderate height, which type Mr. Martin prefers, neither long nor very short in leg. He was standing on a plank raised a few inches from the ground—a good hint for any run, for birds delight to get off the damp cold ground. Further on is the magnificent new range of houses. They are twelve in number. We think their arrangement as nearly perfection as possible. Each house is large and lofty, large enough for many more birds than are kept in them. In front each has so spacious a grass run that they can be kept green with a lot of birds upon them. They are planted with rhododendrons and other shrubs, and fruit trees and creepers grow against the houses. A terrace walk runs outside the grass yards along the entire range; from this a view of all the inmates is quickly gained. On the other side of it a lawn stretches away to a wood, into which the birds can be turned from any run. But we must not forget them in our admiration of their abodes.

First came Dark Dorkings, more good rose-combed chickens; then Cuckoos, the hens wonderfully clear in marking; one of the best was away in the first-prize pen at Birmingham, but several were without exception the best we had ever seen. They have since, we believe, made their mark at Dorking, Shrewsbury, and elsewhere; next were good White Dorking hens; then in order Buff Cochin chickens, Spanish, Silver Polish, White Cochins, very fine in shape; a mixed lot of chickens; Houdans, among them a cock with a capital leaf-comb, a large company of Buff Cochin hens, White-crested Polish chickens, and lastly Black Cochins. In this yard was a most amusing cockerel which Lady Dartmouth taught with some others to catch bits of bread like a dog. From the end of the terrace walk you look down on to a duckery. A green grass bank shaded with large trees runs down to a stream, and on the other side again is a lower grass lawn. The whole is enclosed with high wire fencing, and one would think it a paradise for fancy waterfowl, but hitherto unfortunately they have not thriven; possibly the strong stream is too cold for them. Behind the range of houses is a rough grass field again and plantation, where the tenants of the houses can be turned out. We have always found it very convenient to be able to change birds into various runs.

The yards of this range are all *en suite;* so having glanced at the birds from the terrace walk outside we returned through the yards for a more minute inspection. We observed that the perches are very low and small, such as a bird can grasp. This is entirely in accordance with our own ideas. We have tried perches of all sorts and sizes, and are persuaded that small ones are the best, as they are the most natural. Inside each house at the back are two good-sized pens for single cocks, boarded some way from the ground to prevent combats. This is a capital plan where there is a careful manager. We would not recommend it for all establishments, for if the birds were neglected and left too long in such places they would lose heart and condition and their combs would droop. Among the cocks were some fine fellows. A Black Cochin with the best foot-feathering we ever saw, a tufted nondescript with wonderful lustre and bloom—this is a crossbred bird, an example of the beautiful and interesting creatures which may be produced by crosses; an immense pure White Houdan—he was last year the cup bird at one of the great shows, and has moulted out pure white. We have known strange instances of such changes, and have ourselves a once Dark Dorking hen, only twenty months old, which is rapidly becoming White. Then came another nondescript, a lovely White bird; a splendid single-combed Dark Dorking cockerel, perfect in colour; and many more. But space will fail to relate all we saw. In every house we found something of interest, and slowly came back to the end of the range towards the road. We must leave for another description the other yards.—C.

THE READING PIGEON AND CAGE BIRD SHOW.

THIS pretty Show was held on the 23rd and 24th inst. The public have learnt that it is always well managed, and so the entries have greatly increased each year. Those of Pigeons were this year very large, and the quality of the birds in many classes was very fine. The Carriers and Pouters were simply wonderful.

Carriers.—Over eighty competed in five classes. The cup went to Mr. Maynard's grand Black cock, almost a faultless bird. The same gentleman was first in Black hens with a bird in capital condition as well as good in points. Blues showed well, and the class for young birds was very well filled, first being a Dun of great promise. Pouters were also an extraordinarily good lot. Captain

Hill's challenge cup was competed for and again won by Mr. Bullen's Blue cock. We specially admired Mr. Baker's first Black hen, Mr. Keall's first White hen, and the first Yellow hen which was in beautiful condition. Dragoons struck us as being all round about the best collection of the variety we had ever seen; they are now bred to a more definite standard, and show less of the Carrier's wattle than formerly. We thought Mr. Wood's cup Blue cock a perfect bird, and Mr. Osmond's second quite a model in head properties. The first Yellow hen (Leith) is an admirable specimen, as good a one in form as we ever saw. Jacobins.—It is needless to describe the three winning birds in the first class, a Yellow and two Reds; they are Mr. Salter's celebrities. In the other class Mr. Salter again took all the prizes; first with a lovely White, second with a Black, and third another White. Homing Antwerps, as usual at Reading, made immense classes, over one hundred birds in all. The Short-faced Antwerps did not strike us as very good. Tumblers.—The Almonds were very good, and Short-faced any other colour very fair, first being a Red, second a Red Mottle, and third a Kite. Flying Tumblers numbered sixteen, first a very good Black Beard, second a Blue Beard, and third a Yellow Rosewing. Owls (Foreign).—Several birds in this class were unwell, and showed the effects of this long winter. One of those which were equal third was a Black. English Owls made very good classes. The first Blue cock (Salter) was very remarkable in head and in deepness of colour; the same exhibitor's cup Silver hen is a beauty. Turbits were good classes, though not equal to those of some shows this season. The first Blue cock was very good in gullet, and of a pleasing colour. In the other cock class a Red was first, rather large but good in head and bright in colour. The cup went to a pretty little Blue hen, indistinct in bars and short-flighted, but beautiful in gullet. Magpies were many and good, the cup Black cock very rich in colour. Archangels were unfortunately in a bad light; we did not quite agree with the awards. The first bird had not a good head, but the merit of gloss and colour down the back. The second we did not admire. We thought an unnoticed bird of Mr. Salter's one of the best. Barbs were a grand class. First a Black, second a Black, and third a Red. We thought the first a little straight in face. Mr. Fulton's famous old Red was not in the list. Fantails.—First and third were Whites, both combining nice tails with some motion. Second a flat-tailed Black. Any other variety.—First a good Black Swallow, second a Blue Priest; third, called a "Cologne Priest," was like a Suabian with a white cap. Immense Selling classes followed with little to notice in them. A curious and interesting Japanese Pigeon was in the Show, not for competition. Its colours are very gorgeous, and somewhat resemble those of the Harlequin Bronzewing; its feathering is very loose and hangs almost like hair. We hear that a pair of these rare bird were imported, and that the second was unfortunately killed a few days ago.

Twenty classes for Canaries were well filled. The Mules, too, were as numerous and beautiful as any we have ever seen. The foreign birds are always a great feature in such a show, specially at Reading, where all the choicest and rarest specimens from Mrs. Monck's aviaries appear.

In the Parrot class a grand "King Parrot" was first. Five groups of Foreign birds were shown, and Mrs. Monck won all the four prizes. In her cages were some very rare Parakeets, very fine Cardinals, a Blue Robin, and a Madagascar Love Bird. The class for Foreign birds shown singly or in pairs was immense. First was a glossy Starling, second an Indian Nightingale with splendid tail, third a Pekin Nightingale, and fourth a pair of Blue Bonnets. Among the very highly commendeds was a pretty little Diamond Sparrow in nice condition, a rare pair of Harlequin Doves, some Zebra Finches, and many other pretty birds.

The Corn Exchange, in which the Show is always held, was as usual well heated.

VARIETIES.

The following notice has been issued by the authorities of the Alexandra Palace Bird Show—"A much-needed reform in the conduct of Shows is announced to take place in connection with the above. The catalogue will be virtually abolished, or at all events the necessity of purchasing a copy will be abolished, inasmuch as each table will bear a label giving full description of the class of birds exhibited upon it, and each cage will bear its selling price. Visitors will thus be spared a tax and a nuisance, and those ordinary pleasure-seekers who do not know the difference between a Belgian and a Norwich Canary, or between a Woodlark and a Skylark, will be enlightened and interested. It is claimed for the innovation that the result will be the same as that achieved by its recent adoption in the Alexandra Palace picture gallery—viz., a larger number of interested visitors and increased sales." We trust from the wording of the above notice that the labels on each cage are to be supplementary to a catalogue and not in lieu of it. It is quite true that many visitors to a show will be glad to avoid the expense of a catalogue, but at the same time the regular fancier likes to see by a glance at the page of a catalogue who are exhibiting, and also likes to preserve the catalogues of the great shows for future reference. Intending purchasers, too, find it convenient to compare the prices of birds in a printed list, and would waste time in going from label to label. We shall be interested to see how the plan works.

—— The British Jurors for poultry at the Paris Exhibition—Mr, O. E. Cresswell and Mr. M. Leno—have received autograph letters from the Prince of Wales thanking them for their services H.R.H. has also sent them portraits of himself.

—— According to returns and estimates collected and compiled by the agricultural department in Washington, last year's crop of wheat in the United States amounted to the enormous total of 425,000,000 bushels.

—— Any observations concerning the migrations of birds during this exceptionally severe winter are worth record. The Harwich correspondent of the *Daily News* writes that a flock of Brent Geese have come over, and are about the banks of the Stour near Manningtree.

MODERN BEE MANAGEMENT.—No. 2.

COMB FOUNDATION.—(*Continued.*)

The extreme brittleness of wax sheets in cold weather renders it necessary to have them slightly warmed before handling. In summer temperatures, however, they stand a great amount of rough usage without risk. To prepare the sheets for brood frames they should first be pared along the upper edge with a penknife and a straight-edge, so that they may lie evenly along the bar. They should then be cut so that when fastened (to the top bar only) there may be a free space of one-fourth of an inch down either side and at least half an inch at bottom. This precaution is absolutely necessary, because the best foundation will stretch a little under the weight of honey and adhering bees, when, if spaces are not left as above, it will press against the side and bottom bars and tend to bulge somewhat. Where it is intended to use foundation freely the top bars of all frames should have a groove along the middle about one-eighth of an inch in depth cut by the saw. This serves not merely as a guide to the exact centre of the bar but gives greater security to the fastening.

The plan I adopt for fixing them is to invert the frame, holding it in the left hand. I then balance the sheet where it is to be fixed or press it into the groove, allowing it to lean on the thumb. A wax smelter is at hand charged with wax as hot as possible. A few drops, say half a teaspoonful, are poured on one end of the joint and allowed by sloping the frame to run along to the other, fixing the sheet as it goes. It is well to treat both sides in the same way for greater security, but care must be taken to allow the wax to set and to support the sheet while turning the frame, and also when inverting it to its proper position. It should at once for safety be hung in an empty hive. Instead of a smelter a teacup and spoon may be used. I cannot recommend a brush or feather, as they daub the sheet, and the bees are slow to work on such places—thus the comb will often be weakest where it should be strongest; besides, such daubed places are rarely thinned down by the bees, and should the comb ever come to table will form a not very agreeable morsel. By the plan I suggest the fastening will not cover more than an eighth of an inch of the sheet. It will be easy for anyone with a little experience to devise other ways of fixing the sheet, but I have always found the above to be a safe and ready plan. For supers the foundation may be fastened in the same way, it being sufficient, however, to do one side. But here I must insert a word of caution. No doubt bees will fill a super more rapidly when furnished with full sheets, but as it sometimes happens during a glut of honey, possibly from want of time, and during cool weather, probably from want of heat, that they do not thin down the foundation perfectly, there is considerable "herring bone" noticeable when the comb is cut up for use. Bee-keepers cannot be too careful in securing honey that shall be unobjectionable from any cause whatever. I should therefore recommend that no greater depth of sheet should be used in supers than from 1 to 2 inches, and that of the thinnest and purest colour.

I have placed swarms in hot weather in hives containing ten full sheets of foundation without any mishap occurring. I am, however, in such cases always apprehensive of breaking down, and as a rule would recommend the sheets to be used alternately with finished combs to aid in bearing the strain to which a heavy swarm will subject them. This plan presupposes that the bee-keeper can lay his hands on spare combs at swarming time, and it is just here that foundation will best assist him; for, without very sensibly weakening his other stocks, he can "crib" a comb here and a comb there, inserting new sheets in their place. Or, still better, let him take away all empty combs from each hive early in spring, closing up those on which the bees are clustered by close-fitting dividing boards. They will hatch more brood by being thus confined, and, as room is required, may have a sheet of foundation inserted between the brood combs every week or oftener. In this way also drone and crooked combs can be replaced with the least amount of loss, and in the end with great gain. It will generally be found that good swarms hived as above will have their house fully furnished in less than a week.

Another way of obtaining the desired stock of spare combs is to keep strong hives working out sheets after the main honey season is over. Full combs can be removed and sheets given after the supers have been removed, and there are generally gleanings from limes or other sources sufficient to keep them in full activity at this work till September. By feeding syrup the working-out of sheets can be carried on even till November. Another very safe plan of utilising the foundation is to place a hive fully furnished with sheets as a nadir to a strong stock, say in May. As population increases the bees gradually work their way downwards, thus causing little risk of breakage, and very soon the stock may be divided into two by giving a queen to the upper one removed, leaving the old queen in the old place. Or the top storey may be allowed to remain for extracting purposes.

Those who have no spare combs would do well to confine the swarm by dividing boards to only as many sheets as they can cover. Thus the weight of the swarm will be more equally distributed and the working-out of the sheets be more uniform. The dividing boards also assist in supporting the bees, and prevent the tendency that a globular mass of them has of drawing the outer sheets towards the centre of the cluster.

When it is usual to find both honey and eggs in the combs twenty-four hours after the sheet is supplied, to have a ten-frame hive filled by a swarm in a week or ten days, to have so desirable a uniformity of combs in the apiary, and in fact almost to double the results in a season, it is scarcely necessary to figure out, as some have done in these pages, the question of cost. If all these advantages are not worth the original outlay of 6*d.* per sheet or so the locality or the season must be poor indeed.—WILLIAM RAITT, *Beecroft, Blairgowrie.*

DYSENTERY IN HIVES.

THIS fell disease has already made its appearance this winter, and caused the destruction of one hive at least in a friend's garden. This leads me to give a word of caution and advice to all bee-keepers, and it will be well it should not be neglected. Dysentery in hives may arise from several causes; but at this time of year, and such a year especially, it may be doubted whether it is possible to apply any remedy which shall not prove as injurious as the disease itself. The only effectual remedy being to transfer the bees to a perfectly clean hive, affording them good ventilation and a little stimulating food, it is obvious that nothing of this sort can be done where the thermometer is generally below freezing point.

The disease is generated for the most part by damp and defective ventilation, and chiefly in stocks that have been fed late in autumn with a too thin and watery syrup. As long as the bees can move freely in and out, as they can in fine open winters, there is little fear of mischief; but when, as is the case this present season, the insects are shut in for weeks together in a close damp atmosphere, dysentery is the most likely of all troubles to befall them.

In this case prevention if possible seems the only remedy, and better than any attempted cure. First of all let care be taken every week, or even oftener, with a crooked piece of wire to draw out every dead bee that can be found about the entrances on the floor boards. This will remove one of the most common and fatal causes of the disease. Heaps of dead are often found choking up the doorways and preventing all egress, as well as shutting the bees up in a kind of "blackhole," to breathe the same vitiated atmosphere over and over again. When this is the case the temperature rises, and you have a death-producing heat which aggravates the evil already existing. At such times great excitement takes place in the hive; the bees are induced to gorge themselves with food, then comes a desire to move abroad; unable to relieve themselves by voiding their excrement in the open air, they discharge it among the combs and on the floor board. So the mischief increases till the entire stock becomes diseased and enfeebled past cure. A certain sign of mischief is a loud humming which may then be heard kept up, with a high temperature day and night.

As soon as the frost breaks up, and indeed on the first interval of warmer weather, we should recommend a general examination of all hives and a cleansing of floor boards. A clean and dry board that has been saturated by exposure to the air should be substituted for every foul one. Where bar-framed hives are in use it would be well on the first open, still, and sunny day to examine the combs, removing any that were mildewed or soiled, or cutting away parts of them so affected. Then, too, even a transfer might be made of the sounder combs and the bees upon them to an entirely new hive of the same size into which the combs would exactly fit. At the same time any lack of food observed might be judiciously supplied according to recent advice which I gave on this subject.—B. & W.

OUR LETTER BOX.

FERTILITY OF EGGS (*S. F.*).—The question you ask has been and remains a vexed one. In ordinary weather you might set the eggs in three days. There is much less intercourse between the sexes in very cold than in milder weather, nevertheless we should feel tolerably sure of the eggs being fertile, even in this weather, after a week. The proportion of sexes when the temperature is as low as it is now should never be more than 4 to 1, and should be increased by degrees as the weather becomes more genial.

SHELL-LESS EGGS (*Idem*).—More shell-less eggs are laid at this season than at any other. As a rule lime is wanting, and other ingredients that birds find when prowling about, whereas now they hang about their houses, and frequently stay within them all day. The blending of the yolk and white is often caused by frost. Put a basket or barrowload of bricklayer's rubbish in their roosting places, and feed the birds on ground oats. Barley is not as good as oats.

ERUPTIONS ON CALVES (*J. T.*).—You do not state the ages of the calves, nor the quantity of bean meal you have given them. You may have given it in excess, together with a deficiency of green food, and the gruel has been given too hot. As the animals are frisky and hearty no medicine is, we think, required, but an additional supply of green food will prove a natural corrective of a somewhat overheated system. We have found nothing so good as carrots, cabbages, and mangolds, the roots being cut finely or pulped and lightly sprinkled with meal, the meal to consist of one-third pea or bean meal and two-thirds of best linseed cake ground into meal; this also may be cooked and made into gruel, and given at a temperature not exceeding that of new milk. Bathe the eruptions frequently with tepid water to allay irritation, and with a reduction of meal and a corresponding increase of roots you may expect the sores to heal quickly. Continue the rock salt as usual. If the animals do not progress satisfactorily write to us again.

LURING ANIMALS (*Naturalist*).—We know of no volume upon decoying animals, and among them fish. There is a ballad, of which we have but this verse—

"The herring loves the merry moonlight,
The mackerel loves the wind,
But the oyster loves the dredging song,
For he comes of a gentle kind."

COTTAGE HIVES (*Suffolk*).—The place in your garden facing north-west will do very well for the two hives you have bought, and they may be placed there at any time before March with safety. If the hives are strong enough in bees it would be bad policy to unite them, and even if it were desirable to unite them you have not had experience sufficient to enable you to transfer the bees from one hive to the other. As soon as the weather becomes a little warmer and the bees commence flying about give them some warm syrup twice a week. The stock hive which is four years old should not be kept longer than the present year. As your houses are made of straw perhaps the "Handy Book of Bees" by Pettigrew, price 3*s.* 6*d.*, would suit you best for the time being.

BAR-FRAME SUPERS (*Zenas*).—Supers of the kind you name may be used on all kinds of hives with crown holes in them. Bar-frames in both hives and supers facilitate the use of artificial comb foundations. Crown holes for supering should be not less than 3 inches in diameter. We do not use or approve of the use of wire over the crown holes to prevent queens from entering supers. Probably Messrs. Neighbour keep in stock the sort of wire sometimes used. When used it should be on the outside of hives. Bar-frames and sectional supers can be used on straw hives. Let pieces of artificial foundations be attached to the bars and sections before the supers are placed on the hives. The most successful men of the day who use bar-frame and sectional supers place no wire over the crown holes of their hives.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. Jan.	Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 22	30.020	29.0	26.8	E.	33.6	33.4	28.0	48.3	27.2	—
Th. 23	30.007	28.4	28.3	E.	33.2	31.4	24.1	38.8	21.3	—
Fri. 24	30.006	30.2	29.8	N.E.	33.3	32.0	28.4	38.2	27.6	0.030
Sat. 25	30.053	30.4	30.4	N.E.	33.1	32.8	28.4	35.1	28.1	—
Sun. 26	30.174	33.0	32.5	N.E.	33.2	35.3	30.5	39.8	30.5	—
Mo. 27	30.380	34.5	33.7	E.	33.0	36.0	32.7	41.7	32.2	—
Tu. 28	30.371	32.1	31.3	N.E.	33.1	34.1	31.1	37.4	31.3	—
Means	30.144	31.1	30.4		33.2	33.6	29.0	39.9	28.3	0.030

REMARKS.

22nd.—Very clear, bright, cold day, and rather windy; bright starlight night.
23rd.—Another bright cold day with high wind; cloudy evening.
24th.—Fine dry day with cold wind; snow in evening.
25th.—Fair morning, light covering of snow on ground, thick and overcast in afternoon and evening, with little sleet.
26th.—Dull, damp, cold day; partial thaw.
27th.—Clear and fine day, cold wind; cloudy night.
28th.—Fair day throughout, but dull and cold.
Almost continuous but not severe frost.—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 29.

A SLIGHT improvement has taken place for best goods, but common sorts are a complete drug. Large consignments of St. Michael's Pines are arriving prices being at their lowest.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples	½ sieve	2	0	to 6	0	Melons	each	0	0	0	0
Apricots	dozen	0	0	0	0	Nectarines	dozen	0	0	0	0
Chestnuts	bushel	12	0	16	0	Oranges	⅌ 100	4	0	10	0
Figs	dozen	0	0	0	0	Peaches	dozen	0	0	0	0
Filberts	⅌ lb.	0	9	1	0	Pears, kitchen	dozen	4	0	6	0
Cobs	⅌ lb.	0	9	1	0	dessert	dozen	3	0	8	0
Grapes, hothouse	⅌ lb.	2	6	8	0	Pine Apples	⅌ lb.	1	0	3	0
Lemons	⅌ 100	4	0	8	0	Walnuts	bushel	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 6—12, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age. Days.	Clock before Sun. m. s.	Day of Year.
6	TH	Royal Society at 8.30 P.M.	46.5	32.6	39.6	7 33	4 56	4 30	7 9	15	14 19	37
7	F	Geologists' Association (Anniversary) at 7.30 P.M.	46.9	33.0	39.9	7 31	4 57	5 56	7 29	○	14 22	38
8	S	Royal Botanic Society at 3.45 P.M.	45.6	32.0	38.8	7 30	4 59	7 22	7 46	17	14 25	39
9	SUN	SEPTUAGESIMA.	45.3	31.6	38.4	7 28	5 1	8 47	8 1	18	14 27	40
10	M	Royal Geographical Society at 8.30 P.M.	44.9	30.1	37.5	7 26	5 3	10 14	8 17	19	14 28	41
11	TU	Royal Horticultural Society—Fruit and Floral Com-	44.5	29.8	37.2	7 24	5 5	11 42	8 34	20	14 28	42
12	W	Society of Arts at 8 P.M. [mittees at 11 A.M.	44.9	29.6	37.2	7 22	5 7	morn.	8 55	21	14 28	43

From observations taken near London during forty-three years, the average day temperature of the week is 51.2°; and its night temperature 31.2°.

DIFFICULTIES OVERCOME.—No. 2.

DURING severe weather the regulation of temperatures is often very difficult where several houses are heated from the same boiler. For instance, of eight houses heated by one apparatus and with nearly the same arrangement of pipes in each, one house is required to have a minimum of 40°, two a minimum of 50°, one of 60°, and the others about 55°. Theorists will tell you that it is the easiest matter in the world to regulate them by means of a valve in each house on the flow pipe, leaving one full on, another half on, another a third, and so on, but practicalists know better from sad experience. Generally speaking a valve if turned sufficiently to insure its working at all safely during the attendant's absence will allow the pipes to heat just as much as they would if turned fully on. You cannot by so many turns of a screw secure a certain temperature in one house and a higher or lower one in the next.

In mild weather we can manage tolerably well by running the hot water two or three times during the evening round such compartments as require a greenhouse temperature, and sometimes they do not require artificial heat at all; but when the outdoor thermometer is down to 10° or 20° frost the difficulty is greater, you cannot always then run the heat round at your pleasure for the following reason: In the compartments used for forcing to keep up the required temperature the water in the flow pipes is approaching the boiling point, and in the return pipes it is also quite hot and moving with great rapidity; you may then turn a valve fully up on the pipes where the water is cold without the least effect (unless they happen to have some advantage in elevation or direct communication with the boiler), as the water in the main return being quite hot and moving rapidly, that in the newly added section will have no chance to mingle with it, and often cannot be moved at all without turning the heat off every other place. This, of course, is always attended with some danger, although it may be, and is, done a score times without a mishap; yet mishaps do come, and they do not generally come at the most convenient time. In greenhouses where the heating is connected with that of hothouses the valves should always be turned up in the afternoon during severe weather, so as to allow the hot water to run round a time or two, and thus lessen the difference of temperature between the two series of pipes, and consequently lessen the difficulties of night work and the risk of an accident.

But the permanent cure for all such difficulties is to have more valves. Arrangements should always be made for heating one portion of pipes in each compartment without heating all of them, because then there is a chance of keeping the water, in all such flow pipes as are in use, of a similar temperature, and no one return pipe will be hotter than another return. Under such conditions there is not likely to be a sudden deadlock, and the different requisite degrees of temperature can be more easily maintained. I need not explain here any of the many simple ways of making such an arrangement, engineers know well how to do it; and if employers will only insist on its being done they will find that, instead of adding to complications, it will generally simplify matters by doing away with dips. Where the greenhouse is always to be a greenhouse, of course it need only have sufficient piping to keep up a greenhouse temperature; but I am thinking more of those small useful structures so necessary in a large establishment to be used more for manufacturing plants than for showing them, and which can be turned at will into greenhouse, forcing house, propagating house, or whatever house is required, at different times of the year.

I have two series of houses, each with some thousands of feet of piping arranged in the way I recommend, and one series which have different arrangements with a great many dips. Not only is there a difficulty in keeping the requisite different degrees of temperature with the last-mentioned arrangement, but the labour is considerably more, and so is the consumption of fuel. The apparatus often has something wrong with it, and there is always a feeling of insecurity. We can never be sure when we go to rest that we shall find all right in the morning.

As I have said before, the work is most likely to go on well if the water in all the flows is of nearly the same temperature; but if this is the case, the arrangement of pipes in each house being nearly similar, the houses will be of a similar temperature, and that we specially want to guard against.

I have tried several simple plans to remedy the defects and give us some feeling of security, and the best of all is the simplest of all—covering some of the pipes with dry sawdust. They being fixed one above another against the walls, we merely fasten a board up in front of them and stuff in the sawdust behind, leaving two, three, or more pipes bare according as experience teaches is necessary to produce the requisite temperature. We can then have the heat fully on all night without making a greenhouse or an intermediate house too hot. The heat is not wasted in the covered pipes; remember it cannot escape from them, as the dry sawdust is a nonconductor.

Two years ago one of our tubular boilers "sprang a leak," and it was just in the forcing season; moreover, it was the one from which we had removed the duplicate to save buying a new boiler for other buildings, it being contemplated to only use the remaining boiler for the one season, and then remove it as well as the houses it heated altogether. It suddenly started leaking so badly into the fire as to put it out. On examination the fault was found near the top of the boiler, there being a small hole there. One of my young men merely stuck a wooden peg in the place, filled up the boiler, lit the fire afresh, and the apparatus worked perfectly well for fully two months afterwards. Had it been a crack this manner of stopping would not have been successful, nor probably if the fault had been lower down, but as it was it was remarkably so, and I think I may say it saved our crops.

Whilst on the subject of heating I may mention a very rude apparatus we have had at work at times during the last two months. Some seven or eight sacks of Myatt's

Potatoes for seed are stuck up endways in a shed where we can command a little heat, but not sufficient to keep out frost with the thermometer at zero. An old-fashioned expansion box, such as was formerly used on hot-water pipes, was lying idle with two pieces of 4-inch pipes attached. One of the pipes was taken off and a piece of iron laid over the hole, the other was stuck through the roof by removing a tile, the box itself lying on some bricks elevated a little above the floor, and we had at once a stove a little rough-looking but perfectly effective.—WILLIAM TAYLOR.

ROOM DECORATIONS.

PLANTS for the decoration of rooms have now to be provided in nearly all gardening establishments. This is by no means the easiest part of the gardener's occupation. Especially where quantities of decorations of various kinds have to be grown this kind of work takes up a considerable portion of time at busy seasons of the year when the labour in various other departments is often needed. Skill and forethought are requisite to prepare the plants for the work they are intended to perform, and care must also be taken to meet the taste and views of employers. In carrying out room decoration on a large scale hundreds of plants that require weeks and months to grow to perfection are destroyed in a few days. Although at the first sight it seems disheartening to the gardener when he considers the anxious care and toil in preparing the plants that meet with such an untimely end, on the other hand he is fully compensated for the loss of the plants when he finds they give every satisfaction to his employer.

It is not only the confinement of the rooms and the gas which injure the plants, but they have often to be destroyed to a large extent by turning them out of pots to fit them into vases and baskets of various shapes that have to be filled, and which are too small, comparatively speaking, to hold sufficient pots to make the arrangement look well, and consequently many plants only last a few days. In other cases plants have to be placed in positions where scarcely a ray of light ever reaches them; for such places flowering plants are useless. In some establishments fine-foliage plants are preferred; in others flowering plants are esteemed. In such dark places alluded to foliage plants are decidedly the more suitable. We would urge the importance of using the latter plants largely for room decoration. They can be grown with less labour, last longer, and are less liable to receive injury than are flowering plants. Much injury is often done to the latter by opening the windows of the rooms during early morning, when the air at times is piercingly cold. Housemaids are not gardeners, and may spoil in half an hour plants that have taken the gardener many months to produce. For instance, a vase of Lily of the Valley produced by high forcing cannot be hardened to endure cold cutting draughts; it is good policy therefore for the gardener to keep on good terms with this domestic as well as with the cook. Flowering plants can be used for room decoration with great advantage in places where they can receive plenty of light. Supposing a room contains six or twelve plants, if half the number are flowering and the other half foliage plants, they can be so arranged that the former are placed in the lightest situation, and the general effect will be more pleasing than if the whole were either flowering or foliage plants. In preparing plants for the purpose in question it is important that an estimate be made early in the season how many plants of various sorts are required and how many are to be grown in each sized pot according to various requirements, and considerable time and trouble will be saved afterwards.

When we consider the large numbers of plants required to carry out this work, and also where cut flowers are in great demand, we do not wonder why greenhouse hardwooded Heaths have been neglected of late years in many establishments; it is undoubtedly because they only flower once in twelve months, and are not so easy to grow as many plants, and they are too good when well grown to be destroyed for room decoration. Softwooded Heaths are invaluable for the decoration of dwelling houses. They can be grown easily and purchased cheaply. We consider it best, indeed, to purchase them annually, and when done with to throw them away.

One of the principal points to be considered before preparing the plants for room decoration is what plants our employers appreciate, and to grow these in adequate numbers so as to give the greatest amount of satisfaction. Another point also important is that young men who have to assist in such work consider the surroundings before a certain plant is placed in a vase; for instance, if the curtains are white something should be placed there that will produce the greatest effect; when, on the contrary, they are red, or green, or of other colours, plants appropriate should be selected. But, after all, the primary object of gardeners should be to study the tastes of their employers and to carry out the work to their satisfaction, however opposite these tastes may be to the fancies of the cultivators. —W. BARDNEY, *Norris Green.*

MANURES FOR FRUIT AND VEGETABLES.

ASSUMING that your readers require practical information, I will confine my remarks to the discussion of a few kinds of manures for fruits and vegetables as applied in the common course of everyday practice. Few manures are more useful than cow and horse droppings. There are no crops to which they cannot be applied with perhaps more benefit than any other manure. We never use cow dung in potting Pines, but horse droppings are used with advantage; cow and horse manure mixed in Vine borders, especially when the soil is poor, cannot fail to be of great advantage to the Vines. In fact with plenty of such manure we should hardly desire any other to mix with the soil, other stimulants being given in a liquid state.

Cow and horse droppings vary very much in richness according to the manner in which animals are fed. Manure, the produce of grain, meal, cake, &c., is much more valuable than that produced by hay or straw. We have often observed, too, that the strong manure is much the best for mixing with hotbeds. In making up Pine beds we always mix about a quarter of rough manure from cattle being fed for exhibition with three-quarters of leaves, and it is surprising the length of time bottom heat is secured. The manures named may be used in quite a fresh state for most crops, or they may be laid in heaps for some months for use as required. The droppings from the stable here during the time the family are in residence are all made into Mushroom beds, and after they have served that purpose the spent beds are used for potting many kinds of plants, or for mixing with soil in which young Celery, Cauliflower plants, &c., are prepared in frames for subsequent planting out. Indeed, old Mushroom-bed manure is about the handiest material that can be in store about a garden. Cow manure is also placed in a large heap until any hay or straw that may be amongst it has decayed. During this time we have a large water-tight tank on the lower side of the heap, into which all the liquid drains that comes from the manure. This is largely used for watering Vines, Pines, Peaches, vegetables, &c.

In making up mixtures for surface-dressing Vine borders, the manures named, as a rule, constitute a quarter of the bulk. For Celery more than that is applied; and on the quarters where any crop of the Brassica family have to be planted the same material is liberally applied, so it is to Onion ground, but we do not like cow dung for growing roots. For Potatoes, Carrots, Beet, Parsnips, &c., we mix all the long straw manure which comes from the stables with leaves, and when quite decayed it is deeply dug into the ground before sowing the seed of plants of which the roots go deep. For Potatoes it is not buried so deep, but often when made or mixed up at first it is used for hotbeds, and comes in for manuring the ground afterwards. This is a profitable way of disposing of such material.

For vegetables we never like to dig the manure in during the autumn when it will not be wanted until spring or summer. As the crop is cleared off the soil is turned over deeply, and just before planting the next crop the manure is forked into the surface convenient to the roots, as the case may be.

Horse dung, litter, and leaves do not generally contain many insects, but cow dung very often does. In such cases salt is excellent for mixing with it, as it kills much vermin, and at the same time acts as a very good fertiliser. We generally apply it at the rate of 1 cwt. to the cartload or two of dung. Salt is not so much used in ground infested with insects as its merits deserve. Unlike many manures it is very cheap. It is sometimes thought that as salt kills grass, &c., that it will prevent vegetables from growing, but the very opposite is the case when it is used in moderation. We never apply it or any other manure in stated quantities, but give the ground more or less as it is rich or poor, free from pests or infested with them.

As our vegetable quarters are becoming vacant this winter a coating of lime is being dug into them at once. By planting time the manure will be applied as usual. Lime and dung do not go well together, but the former will not deprive the latter

of its good qualities when applied two or three months previously. In gardens overrun with slugs lime should be dug into every inch of ground as it becomes vacant, and just before planting add plenty of salt to the manure that is being used; slugs that will progress after this are different to any I have seen.

Good cow dung is what we like to place near the roots of most of our fruit trees about this time; sometimes it is mixed with fresh loam and applied as a top-dressing, or very often the manure is lightly forked in. When any vegetable quarter becomes what is termed "manure sick," a little lime, but no dung, revives the soil wonderfully.

Guano we use mostly in a liquid state for Pines and Vines in fruit, and for many kinds of vegetables. Sulphate of ammonia, sulphate of potash, nitrate of soda, and dissolved bones are all excellent fertilisers, and act quickly; ½ cwt. of the first named, 1 cwt. of the second, ½ cwt. of nitrate of soda, and 2 cwt. of the last, mixed together and applied per acre, or in proportion to that rate, will aid in producing splendid crops of vegetables. Dissolved bones, bone dust, and half-inch bones are all good for mixing in Vine and Peach, or indeed all fruit-tree composts. The first is also good for Pines, Melons, and Cucumbers. Many gardeners use pure ground bones for Melons, Cucumbers, and other quick-growing annual crops, but raw bones do not act quickly enough for such crops, and for this reason they are inferior to dissolved bones. We have several Pine plants potted in soil mixed with Amies' manure, but sufficient time has not elapsed for us to form an estimate of this stimulant.—A KITCHEN GARDENER.

A FEW GOOD OLD AND NEW ROSES.—No. 1.

1. *Rosa damascena* (Damask Rose).—This Rose is undoubtedly the most ancient of all, whether they be found in gardens or indigenous in Syria. According to Dr. Wetzstein, formerly Prussian Consul at Damascus, it still plays, though so ordinary a flower, a prominent part in Damascus. During the efflux of the inhabitants of Syria into Greece, in very remote periods, the Damask Rose was introduced in conjunction with the worship of Aphrodite or Venus, though only into the islands and into the Peloponesus, and principally cultivated on the island of Samos, flowering twice a year in those days. In the Apocrypha mention is made of a Rose, and in all probability it is the Rose under our notice. Reference is also made in the same book of a garden of Roses not far from Jerusalem. In the time of Avicenna, a celebrated physician of Arabia, the Damask Rose was extensively cultivated in Syria, partly for medicinal purposes. The Phœnicians in remote times brought the Damask Rose over from Syria to Pæstum, a town in lower Italy. During the second century of the Republic and under the Roman Emperors this Rose of Pæstum was in great request at Rome. Later on it was entirely lost sight of. The Rose of Count Robert de Brie was assuredly no other than the Damask Rose. During the sixteenth century a professor at Seville in Spain, named Monardos, was the first to describe the Damask Rose under the names of Rosa persica and Rosa alexandrina, and to give instructions as to the manufacture of oil and perfumes from it. The Arabs introduced the Damask Rose into the northern parts of Africa, where it is still cultivated for the manufacture of oil and scents; its culture is principally carried on in the empire of Morocco, according to the descriptions of Sir Joseph Hooker. Desfontaines, the Director of the Jardin des Plantes in Paris, in the beginning of this century also described the Damask Rose in the "Flora Atlantica" under the name of Rosa moschata.

From the château of Count Robert de Brie the Damask Rose found its way into all civilised parts of Europe, but notably to England. In Shakespeare's time it was held in high estimation, as the Musk Rose, and the white and red Damask Roses were the respective symbols of the Houses of York and Lancaster during their wars.

The botanist Lobel of Lille, in the course of the sixteenth century, was the first to give it the appellation of Rosa damascena.

The Damask Rose has been known by us in Germany, by botanists also, as the twice-blooming Rose (Rose bifère), on account of its two distinct blooming periods; it has also been styled the Rose of the four seasons, otherwise Rosa semperflorens.

2. *Rosa centifolia and gallica.*—Our Centifolia Rose is no doubt only a variety of Rosa gallica with short sprays and clear bright flowers, slightly shaded, just as in the true Rosa gallica, indigenous not only in France, as the name indicates, but nearly through the greater part of Europe and the northern parts of Asia. In France the latter goes under the name of Provence Rose, frequently also Provins. The Belgian Rose (Rosa belgica) is only a variety, of which there are a great many, besides numerous hybrids between Rosa gallica and centifolia. The true Rosa gallica is styled Essigrose (Vinegar Rose) in Germany. The Centifolia Rose has been known in Greece under the same garden name since very remote periods; from which also the Rhodope mountains receive their name, which signifies Mountains of Roses.

The Latin historians do not enlighten us as to the time when the Centifolia was brought over from Greece into Italy, at least as far as I can ascertain. At all events, whenever it was introduced it was known as the Grecian Rose. Pliny himself styled the Centifolia a Rose of Damascus. I never saw during my long and oft-repeated sojourns in Italy the true Centifolia Rose much cultivated in the gardens. The Provence Rose, of dwarf growth and very dark flowers, was, however, very much sought after in France, several varieties of which were named Le Nègre, Nubienne, Belle Africaine, &c., indicating by their names the colour of the flowers. No doubt is entertained that the above Roses have never been used in the place of the Damask Rose, except on Mount Calvary near Paris, for the production of perfumes and highly-scented oils; neither can we ascertain from Greek records that the Centifolia, or the analogous double Rose Essigrose of Germany, has been used for that purpose, but only the true Damask Rose well known to the ancient Greeks. We know well, however, that in more modern times the Centifolia has been extensively cultivated in the plains of Adrianople and on the south side of the mountains Bermion for the manufacture of perfumes, but more especially for the celebrated attah of Roses. According to the recent researches of Mr. Baker of Kew the Rose of Adrianople is not in reality a Centifolia, but a Damask Rose, which alone supplies the true essence of Roses of Oriental India, Cashmere, and Morocco.

In the course of time several crosses have resulted from the Damask Rose and the Essigrose; they have many points, characteristic of their parents, in common, and found their way into other countries under different names. The dark-flowered varieties of the Provence Rose were also highly esteemed in Turkey. The Centifolia and the Provence or Turkish Rose are still held in high estimation throughout Asia.

Happening in 1837 to be at Etschmiadzin, in Russian Armenia, at the house of the Katholicos (Armenian Pope), where I was well received, he at each repast invariably placed either a Turkish or Provence Rose on my plate. The most select Turkish Roses then were the Sultan, Maheca, the Rose of Sérail, King of Persia, &c. During my four years' journeys in the East I came across this same Rose again cultivated in large quantities in the gardens beyond Etschmiadzin. Other travellers report having seen it cultivated in the far East—for instance, on the Himalayan Mountains. The director of the Viceregal Gardens in Egypt, M. Delchevallerie, also reports in his descriptions of the Egyptian gardens the cultivation of the Centifolia Rose.

The double Roses which Professor Ascherson brought from the great Oäsis to Berlin are certainly only allied forms of the Damask Rose. The Damask Rose goes at times also under the name of Centifolia; such is the case for instance at Cashmere. Nevertheless this latter appellation is probably only of recent origin, and simply means a double Rose, or in other words a Rose with many petals.

3. *Yellow Roses, Rosa punicea* (*Eglanteria*, L.; *and lutea*, Mill).—We possess two varieties of yellow Roses with double and single flowers. One is the climbing Rose with single flowers, the principal variety of which has flowers with a red centre and yellow outside petals; it goes therefore also under the name of Rosa bicolor. This variety distinguishes itself a little from the others in the colour of the flowers, but the leaves of all the varieties when rubbed give off a very strong odour of bugs; for this reason they are also styled in Thuringia, Germany, where they were formerly extensively cultivated, Bug Roses, but more often Turkish Roses. The French call them "Rose Capucine." A variety with double but self-coloured flowers goes under the name of "Persian Yellow." This variety originated in Persia.

The other yellow Rose (Rosa Eglanteria) with double, crowded, and Centifolia-shaped flowers, is not often met with except in the country gardens of Germany. It is generally a very free-flowering Rose, but it absolutely requires a clear sky

and a warm dry temperature during the blooming season. With an overcast sky or during rain the flowers refuse to open and invariably split. It was probably obtained through the cultivation of the true Rosa Eglanteria.

M. Hansknecht, a celebrated botanist of Weimar in Thuringia, not long ago found this variety growing wild in Persia. —KARL KOCH (in *Journal des Roses*).

STRAWBERRIES IN POTS.

THE earliest-started plants will be showing the trusses. The plants must not be over-excited by too much fire heat, or they will be drawn up weakly. Until the flowers open the plants should be syringed morning and afternoon, after which omit the syringing, but maintain a good moisture by sprinkling the house two or three times a day. Some see no benefit in bottom heat for Strawberries, but we have not found any plant started at an unnatural season but is the better from slight warmth at the roots. We find that a bed of leaves about 2 feet deep, with the Strawberry pots plunged therein, of great advantage, taking care that the heat at the base of the pots does not exceed 65°, and the plants being about 15 inches from the glass. Plants thus treated afford fruit a fortnight earlier, and of larger size and finer quality, than those brought on without bottom heat in a similar temperature.

The temperature should not exceed 55° at night, it being important that the growth be slow until the fruit is set, for if subjected to a high temperature the blossoms will appear all right, but the pistils become a black mass when fully exposed to atmospheric influence. As the flowers expand increase the temperature by day to 60° or 65° from fire heat, and 70° to 75° with sun and free ventilation; 5° less all round is more safe, especially if the leaflets though broad are thin in substance, and the leafstalks slender from drawing up too quickly, then a lower temperature is advisable and freer ventilation. When the plants are in full flower a sprinkling of the pots twice a day keeps all moist and agitates the air, which does much towards impregnation, but we go over the flowers with a camel's-hair brush. The plants must be examined at least once a day, giving water where needed, but avoid soddening the soil. If aphis appear fumigate on two consecutive evenings moderately before the blossoms open. The second batch should be kept in a temperature of 50° at night, and 55° day by artificial means, and be syringed morning and afternoon; an advance of 10° from sun heat may be allowed with free ventilation. Another batch of plants should be introduced to the shelves in Peach houses or vineries, removing a portion of the surface soil, and top-dressing with dried horse droppings or cow dung, turfy loam and bone dust in about equal parts, and moistening before applying, otherwise it will wash off in watering. Only the mere "skin" of the surface should be removed, as to disturb the roots is injurious. See that the drainage is all right and that the pots are washed clean, removing any old leaves. Sir Harry, Sir Joseph Paxton, President, and James Veitch, a very fine large showy Strawberry, are good sorts for introducing now; but more or less of the early sorts should be employed still, so that there may not be a break in the succession. No bottom heat is necessary for this batch, as the plants from having had a longer season of rest will start more freely than earlier in the season. Air should be freely admitted to plants in frames, and they must not be allowed to suffer by want of water, at the same time protecting them from heavy rains and frost. Ours are all in frames. Plants plunged in the open ground will have been protected during the late severe weather, and must be uncovered when the weather is mild. Owing to the snow the plants in such positions have not suffered any injury.—G. A. G.

PARAFFIN AS AN INSECTICIDE.

I AM quite satisfied, after Mr. David Thomson's remarks on page 65, to allow the effects of paraffin to stand over. My remarks were principally intended to put amateurs on their guard, and from what I have seen I still think caution is necessary. I grant that paraffin will kill insects, and *if* it can be washed off there is an end to it. But it was not from one, or perhaps even two applications, that I considered there was any great danger to the foliage being skinned over; it was more the frequent use of the oil that I objected to. The first of my seeing it recommended was by a correspondent, who stated that but for his syringing his Peach trees with diluted paraffin he did not know how he would have cleared them from scale. The syringing might, and probably was, after the fruit was pulled. To syringe before I consider very objectionable, as the smell and taste of paraffin in ever such small quantities I think very repulsive, and does not pass off in a week or two. If we permit paraffin to be equally with sulphur a good servant, let us remember they are both of them bad masters; and the loose way that sulphur has been recommended I know has ended in vexatious misfortunes.—J. WITHERSPOON.

ALYSSUMS.

AMONG the homelier sort of spring-flowering plants the perennial species of Alyssums hold an important place. When Arabises, Drabas, and Aubrietias are losing their first flush of beauty these still continue to enliven the rock garden with their sheets of golden flowers. They are essentially rock plants all of them, and grow better there than anywhere else. Wherever the soil is of a dry and open nature they are of the easiest possible cultivation even on the level borders, but where the soil is damp and clayey they do not succeed. The best known and the most ornamental of the family is

Alyssum saxatile.—It is a half-shrubby spreading plant, growing 9 to 12 inches high. The leaves are lance-shaped, hoary on both sides, mostly entire, but in some varieties slightly toothed. The flowers, which are freely produced in loose panicles, are of a bright golden yellow, and last about three weeks. It blooms during April and May, earlier or later according to situation and the age of the plants. There are now a number of varieties or strains in cultivation, but these vary but little from the species, and that chiefly in respect of habit, some being more compact and smaller in the foliage than others. A. gemonense, which is ranked in some catalogues as a separate species, seems to be only a robust, but still very ornamental, variety of A. saxatile, inferior to it, however, for neat rockwork. The variegated-leaved is well worth growing as a variety, but it neither flowers so freely nor is it so hardy as the type. Out of a dozen plants or so of it that I grow on rock beds very few have escaped injury from the late severe frost. Though quite easily propagated from cuttings in June, seed sown in slight heat in March, and the plants pricked out on a warm border in May, is a readier way of raising a stock.

A. montanum.—This forms a neat dressy little plant not unlike some of the mossy species of Saxifrages. It seldom grows higher than 6 or 7 inches, but a single plant will sometimes form a cushion 18 inches across. The leaves are small and slightly hoary, and when closely examined are found to be dotted with star-shaped groups of hairs. These are characteristic of the family, but are most conspicuous in this species. The flowers are borne in flat short-stalked racemes, which scarcely rise above the leaves. It is more fastidious as to soil than the last: good gritty loam on a raised rock bed seems to suit it best, but even there it sometimes goes off rather unaccountably. It does not ripen its seed, so far as I have seen, but cuttings strike freely under handglasses in summer. In making these, as in Arabises, a good length of stem should be inserted in the ground.

A. spinosum is not a very ornamental species. It is a dense-growing shrubby plant of somewhat upright habit, and with small grey leaves. The flowers are white, in small trusses, and the shoots which have flowered afterwards develope hard thorny spines, hence the specific name. It is propagated by cuttings.

A. olympicum.—This is a straggling decumbent species with small, whitish, spoon-shaped leaves, and flowers of a deeper yellow than those of A. montanum. It may be propagated by division or cuttings.

I have twice attempted to procure a plant of the Alpine Alyssum (A. alpestre), and failed. The first brought me a good plant of A. olympicum, and the next a weedy relative, Schivereckia podolica. Perhaps some reader of the Journal might know where it is to be had.—R. D. TAYLOR.

FRUCTIFICATION OF ADIANTUM FARLEYENSE.

THE following observation on this Fern may not be uninteresting at the present time in your Journal. A few years ago I had the pleasure of seeing a handsome plant of this Fern. It was growing in a stove in a position that the plant was seen from below. The plant was kept in form by a wire crinoline, over which the fronds drooped. The plant when inspected had several fronds on which there were spore cases, but whether they contained spores or not I am not able to say.

At one of the meetings of the Royal Horticultural Society a few years ago were not fronds exhibited of this Fern in fruit more or less?—R. M. A.

CARPET BED.

THE accompanying diagram represents a carpet that was greatly admired at Hampton Court Palace last summer. It is a plan likely to suit a large class of people, for, as our readers will see, the greater portion of the plants employed are hardy or nearly so. The Mentha was grown entirely out of doors last year at Hampton Court. The Pyrethrum and Leucophyton will not endure heat, while the Sedum will resist any amount of frost. This plan, too, will suit almost any garden, for it can be made as long or as broad as desired, according to the size of the bed or border on which it is carried out. It is a simple yet pleasing design, and as planted the bed had an extremely chaste appearance.

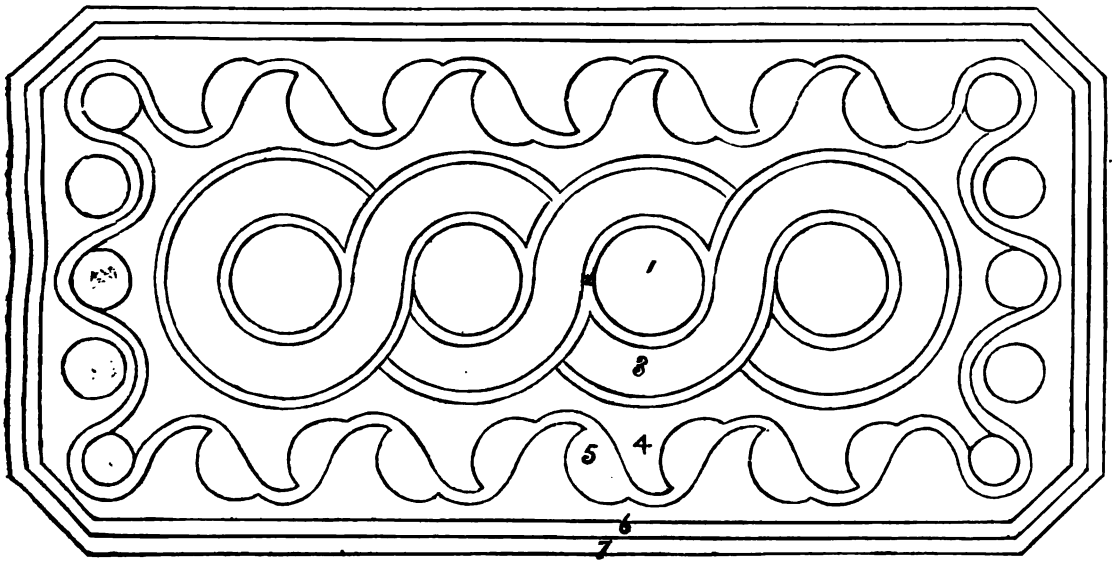


Fig. 11.—CARPET BED AT HAMPTON COURT.

1, Leucophyton Brownii.
2, Golden Pyrethrum.
3, Alternanthera paronychioides major.
4, Mentha Pulegium gibraltarica.
5, Alternanthera amœna.
6, Sedum glaucum.

NOTES FROM MY GARDEN IN 1878.

WHEN I look at the position of the contributors to the Journal; when I see, for instance, that a late number commenced with an article from Mr. Thomson of Drumlanrig; and when I call to mind the glories of that princely place, its long rows of houses and pits of all kinds so beautifully kept, its magnificent gardens and shrubberies, it is almost with a smile that I sit down to write about my experiences. What must the *chêfs* who have charge of such places think of us little men writing of what we know? Is it not with somewhat of the superior wonder of the bull in the fable when he regarded the poor frog trying to swell himself out to his size? Well, we know that there are many of our readers who garden in one way or other under difficulties, not the most infrequent of those difficulties being a slender purse. They wish to enjoy their hobby, but they are put to shifts to do so; and the experience of one similarly situated has been, I know from the testimony of former years, helpful to them.

I would preface my record by saying that during the ten years that I have been here I have never had such a worrying year in my garden as the last. What with woolly aphis on my Auriculas, orange fungus on my Roses, and exhaustion or disease whichever it may be on my Gladioluses, I have had a tolerably disappointing season of it. There have been other and minor difficulties, so that altogether I do not look back very cheerfully on the records of my garden for 1878.

I must first say something as to my greenhouse. I have this last year made an alteration in the laying of the pipes for heating, owing to the manner in which they get choked and knocked about when being cleaned out, having taken away the elbows and substituted in lieu thereof small brick openings; and although this has lessened the length of pipes, yet I have managed during the severe frost we are now having to keep it out so far, and I hope shall succeed in so doing to the end of the winter.

Some year or two ago I wrote a plea for Ixias, advising persons who were fond of beautiful and graceful flowers to grow them. I had just then tried them, and having succeeded was anxious to get others to do the same. Alas! I have been grievously disappointed in them. Both the last season and the season before they have done miserably. They have started well, thrown up good grass; but when I expected them to be showing their flower spikes the leaves began to turn yellow, the plants got into bad condition, and as a necessary consequence the flower spikes were miserable; and yet when I turn out the pans the bulbs are large—as large as imported ones, and apparently in good health. I have mentioned this to several experienced bulb-growers in different parts of the country; and if, as Montaigne says, it is a satisfaction to have fellows in misfortune, I must fain be satisfied, for I have had similar testimony from all to whom I have spoken. There must be something, I suppose, in climatic influences, or else how is it that they do so well in the Channel Islands? I am afraid, therefore, that we must class them with Tuberoses, Hyacinths, and some other bulbs, and, if we wish to grow them, use imported bulbs. To depend upon home-grown bulbs seems to be a sort of forlorn hope.

Another class of bulbs, too, which I found exceedingly beautiful and most admired was that comprising the Calochorti and Cyclobothras, which have been introduced of late years. Here, again, I was doomed to disappointment. They were apparently harvested well, and started like the Ixias into growth well. But here the same result took place; the foliage became unhealthy, and they, too, withered away without doing anything in the way of flowering. On examining the pots at repotting time I found the bulbs had increased in size and were apparently sound. I asked several bulb-growers of experience, such as Mr. Elwes, Mr. Wilson, and Mr. Rawson, but gained no satisfaction. They could not speak in much better terms of them than I did. Mr. Elwes suggested that as they seeded freely they should rather be regarded as annuals or biennials. It may be so: they do seed freely, and the seed germinates well, as I have a large number of seedlings from the seed of 1877; but it is, I think, very unsatisfactory to find that this is their character.

I have before mentioned that I grow some Lilies to bring into the house in the autumn to take the place of the Camellias and Azaleas when they are put into the lower house; and here again I have been considerably puzzled, and I may say disappointed. We are told that peat is an essential to Lilies, and

that they require good pot room, and that the pots should be deep. Indeed I know that Mr. G. F. Wilson has some very deep pots specially made for them. This year I bought a couple of L. speciosum from my neighbour Mr. Bunyard. They were in 32-pots, and apparently there was hardly an atom of peat in the soil, yet they threw up very fine stems—one, indeed, had two stems. They flowered well, and the blooms were large and of good colour, thus upsetting all that I had understood of their special needs. Then, I should like very much to know something of the treatment of imported bulbs of Lilium auratum, as Mr. Noble pathetically puts it in his advertisement, "imported bulbs will die." I bought a lot of six at Stevens's —splendid bulbs, some as big as my two fists. They all threw up their flower stems, bloomed badly, and I have not one of them left. Now it is quite immaterial to me whether Lily bulbs increase in size or not, or whether a fresh bulb is formed every year, but I should very much like to know if there is not some way by which we might manage to keep our imported bulbs; and if someone who has successfully managed them would communicate his experience I, and many others, would feel very grateful to him. I know mine do not increase in size, but become "fine by degrees and miserably less;" and I think it is hardly creditable to our scientific horticulture that with the tens of thousands of bulbs of auratum annually imported they are by no means a drug. Another question I should like to have answered is, Whether the bulbs imported early or late in the season are possessed of the greater vitality?

The other bulbs that I had in my greenhouse did well. Tropæolums, Cyclamens, Vallotas were all quite up to the mark. I find that with the latter the less they are disturbed the better, and the taking away some of the soil and adding fresh loam seems to be sufficient for all their needs. I have found Tritonia crocata and T. Brilliant to be very useful. Tritonia aurea is too much inclined to red spider, and so I have put it out. The pretty little Iris reticulata, and Lachenalia pendula and tricolor, and Roman Hyacinths, gave me quite a little brightness in the spring. I last year did not grow quite so many Hyacinths, and instead of blooming them, as I had hitherto done, in a separate house which I built for blooming my Auriculas, brought them into the greenhouse, and by dint of putting the softwooded plants closer together managed to give them room; this, of course, gave me a brilliant house just before the Azaleas came into bloom. Thus I may say with regard to the bulbs that I had a mixed experience. In my next I shall have to speak of Pelargoniums and other plants.—D., *Deal.*

EUPATORIUM WEINMANNIANUM.

THIS useful winter-flowering plant is well worth cultivating for affording flowers when they are sometimes rather scarce. I have a row of the plants in the conservatory just coming into flower, and very chaste and pretty they are. It is quite possible to have the plants in flower from the autumn onwards, but as they were not required earlier in our case they were treated accordingly.

The way I grow them is very simple. Cuttings are inserted in February or March in a little heat, and when struck the cutting pots are removed to a greenhouse temperature, then after a week or so the plants are potted singly into 4-inch pots, using loam to grow them in. The next shift they have is into a cold brick pit, in which they are planted out and protected with sashes until the weather is warm enough to dispense with all covering. I have no doubt they would do well planted out in the open, though I have only grown them as above. Each plant should have at least 18 inches for itself in which to develope without being drawn up. Their sole requirements until the middle of September are plenty of water when needed, and from the very first a systematic pinching of the young shoots must be adopted to obtain plants dwarf, well furnished, and floriferous.

A week before lifting the plants for potting each should be gently raised with a fork to facilitate the transplanting process. Six or seven-inch pots are suitable sizes for the plants. In preparing these a few cinders with a covering of old Mushroom bed manure are employed for drainage; the plants are then taken up, the roots pressed into the pots, and as much fresh loam added and rammed firmly as is required to fill the pots sufficiently. The plants are now placed out of doors in a shaded corner for a fortnight or so, giving water as required, and then removed to a cold pit, where they are secure from frost. They require much water throughout the winter. Larger plants are to be had by cutting one-year-olds closely down, planting them out, and other after-treatment same in all respects as just described. No staking or tying is needed, but every plant is left to grow in its naturally bush-like form. —R. P. BROTHERSTON.

A HORTICULTURAL TOUR IN THE WEST.

CARCLEW.

ALTHOUGH this fine garden has been previously described in the Journal, yet we cannot pass it now without contributing a note on our pleasant visit. The owner of Carclew, Lieut.-Colonel Tremayne, M.P. for Truro, is distinguished as being one of the heroes of the cavalry charge at Balaclava. After leaving the turnpike road we had a pleasant drive for more than a mile round the side of a hill through park scenery of great beauty before arriving at the entrance to the mansion. Within the lodge gates a view is obtained of an arm of the sea, which is picturesque, and at the same time affords great facilities for the coal, iron, and timber trades, which are somewhat extensively carried on here. Before arriving at the gardens we drove through a fine old Oak plantation, which adjoins a spacious well-stocked deer park. Skirting this part of the drive are some stately Scotch Firs, and on either side of the drive an avenue of Wellingtonias is planted at proper distances each way to allow a free development of growth. They were to all appearance in a thriving condition, and would measure from 16 to 20 feet in height. On arriving at the gardens we were fortunate in meeting Mr. Palmer, whom we found to be, like most gardeners we know, affable and very obliging in showing us the gardens, and giving us all the information we asked concerning the different plants on the place. The mansion stands on high ground, from which are obtained good views of a beautiful park on the south, and a fine range of mining country on the north-west. The park, which is about 300 acres in extent, is undulating, varied, and very prettily planted with different kinds of trees, amongst which we observed some of the celebrated Lucombe Oak growing in groups; amongst them were several specimens that measured no less than 100 feet in height and 13 feet in circumference of bole. It is seldom that so many fine trees of this Oak are found growing in one place and of such dimensions. The flower and kitchen gardens, fruit and plant houses, lie to the west of the mansion, and are situated at a little distance from it. On entering what might be named the American garden we were struck with the grandeur of the large trees that surround it, and the beautiful oblong pond in the centre fringed with Lily of the Nile (Richardia æthiopica) permanently planted out. It stands the winter uninjured by frost, and flowers freely. Here we saw Camellias and white Indian Azaleas planted out in the borders by the hundred and growing as freely as Portugal Laurels. Some of the Camellias had made shoots more than 18 inches long during the summer, and were covered with such thick glossy leaves as we never saw on Camellias before. Mr. Palmer informed us that they flowered freely, and seldom were injured by frost. He said, however, that "possibly one of the greatest drawbacks to gardening in Cornwall is the want of sufficient sunshine." This, he said, "is felt more especially in fruit-growing, not so much in vegetable culture, but in some degree in that also." Another thing to combat against is the tendency that plants have to grow all the year round owing to the general mildness of the winters. This tendency greatly weakens their constitution, and has often to answer in great measure for failure of results the following season, besides the liability they have when frost does come of being less able to withstand it. "It is rare," he said, "if a bit of Apple or Pear blossom cannot be found all through the summer and autumn months, and often in quantity too. Many of the vegetables will bolt and run to seed during the winter." Evidently, however, it is the county for shrubs and Ferns. The common Polypodium vulgare grows on the trunks of large trees at an elevation of some 50 or 60 feet.

We will now name a few of the trees, shrubs, &c., that were growing here, and give their measurements. The outer or boundary portion of the garden is backed up on the east and north sides with large trees of no mean character, which will be seen from the following notes:—

At the entrance is an extremely handsome specimen of the Lucombe Oak 80 feet high, circumference of stem 10½ feet.

Platanus orientalis, 75 to 80 feet high, circumference of stem 12 feet 6 inches.

Pinus patula, 30 feet high, 6 feet 6 inches in circumference of stem, and 40 feet in diameter of head.

Abies Morinda, 75 to 80 feet high, 6 feet in circumference.

A. Douglasii, 75 feet high and 8 feet in circumference.

Salisburia adiantifolia, 48 feet high and 3 feet in circumference.

Cedrus Deodara, 45 feet high and 5 feet in circumference.

Taxodium distichum, 35 feet high and 4 feet in circumference.

Magnolia tripetala 40 feet high and 3 feet in circumference.

Rhododendrons are extensively grown here. The soil and climate seem to suit them. We do not remember ever seeing such fine plants of the different hybrid sections as we met with in Cornwall. Here are the heights of a few of them growing in front of the trees we have been trying to describe.

R. arboreum europeum 26 feet high, circumference of stem 5 feet, height from ground to first branch 5 feet. Several of the crimson varieties are quite as high as the former but not so tree-like in appearance.

R. cinnamomeum, 10 feet.

R. Falconeri 8 feet, and R. Thompsoni 8 feet.

Besides the few we have given the heights of, we noticed fine plants of R. Gibsoni, R. ciliatum, R. niveum, R. Hodgsoni, R. argenteum, R. barbatum, and the true arboreum. Here, too, were fine plants of the shrubby Veronicas in variety and in vigorous health; fine bushes of Berberis japonica 12 feet high, Embothrium coccineum 15 feet high, Eugenia apiculata 15 feet high, and Dracæna indivisa 12 feet high. These and large spreading bushes of Magnolia conspicua, Chimonanthus fragrans, Retinospora obtusa, Phormium tenax, Lomaria magellanica, Aralia japonica, Camellias, and white Indian Azaleas, formed the principal features of this garden.

A beautiful geometrical little flower garden with a fountain in the centre joins the American garden on the west side on a higher level. It was neatly planted in the carpet style of bedding, and formed a foreground to the plant houses. The houses were clean and contained a good collection of plants. A large plant of Allamanda Hendersoni covered the roof of the stove. Mr. Palmer informed us that it has flowered continuously for more than two years, and that he could not get it to rest even by withholding water, as its roots apparently have grown under the floor, and probably outside of the house. The flowers, he observed, were useful at all times, and more especially during the winter months when other kinds were scarce. Outside, close to the front wall of this house was a row of Amaryllis Belladonna in full flower, the best we have ever seen. We took the hint and had a row planted since in a similar position, and if they flower as freely as those at Carclew we will consider our visit has been beneficial. In the shrubberies bordering this garden were immense bushes of Colletia cruciata, Fabiana imbricata, Hypericum oblongifolium, Hedychium flavescens, Erythrina Crista-galli, and many other fine shrubs of less size.

Leaving the fountain garden a succession of terraces brings us to the kitchen garden, which, by the way, is still higher than the others. It is between two and three acres in extent, and walled on all sides, with a broad slip outside for growing the rougher kinds of vegetables. On the first terrace we admired a fine bed of Lobelia cardinalis St. Clair in full flower, the brilliancy of which was dazzling to the eye. On the terrace next to the kitchen garden there is a particularly fine Eryobotria japonica 10 feet high and much more than that in diameter, and two plants of Escallonia pterocladon 18 feet in height. Habrothamnus elegans and fascicularis, Grislinia littoralis, and several varieties of Ceanothus are growing vigorously on the outside of the kitchen garden wall.

The kitchen garden, like the others, was in good order and in a high state of cultivation; but from its elevated position, and from the fact that the ground underneath has been all mined, it suffers considerably in dry seasons. The gardener's house lies immediately to the west of the garden, and to judge from its outward appearance it is commodious, convenient, and comfortable.

The pinetum is to the south of the gardens on a rising ground, and contains a fine collection of the choicest Coniferæ. Here for the first time we saw Abies canadensis approaching to anything like tree dimensions; in fact we had some little difficulty in recognising it from the bush-like forms we had been so long accustomed to see in different places in the country. Close by was a magnificent specimen of Taxodium sempervirens 70 feet high and 8 feet in circumference, its graceful spreading branches reaching to the ground, and beside it was a magnificent plant of Cryptomeria aponica 35 feet high and 5 feet in circumference of stem. Here, too, were fine plants of Abies Brunoniana 12 feet high, Picea Nordmanniana 30 feet, Cupressus macrocarpa 65 feet, Abies orientalis 30 feet, Araucaria 40 feet, Pinus insignis and Abies Douglasii 75 feet each with stems 8 feet in circumference, Picea amabilis 40 feet, Abies Menziesii 55 feet, Abies firma 12 feet, Cryptomeria elegans 12 feet, Picea grandis 10 feet, Abies Albertiana 20 feet, Phyllocladus rhomboidalis 10 feet. Besides these there were many of the later-introduced genera in a smaller stage.

In taking our leave of this charming place we might say that it is in good keeping everywhere, and has been much improved by the present proprietor and also by the late popular Sir Charles Lemon, who was a scientific horticulturist himself, and took delight in everything pertaining to gardening.—A. PETTIGREW, *Castle Gardens, Cardiff.*

THE REVIEW OF THE "ROSARIAN'S YEAR BOOK."

I WROTE my article on page 38 of the "Year-Book" at Mr. D'Ombrain's special request. I have read the comments thereon in the *Journal of Horticulture*, page 66. The comments are not to be justified. Let any person read the two, and I am sure no one versed in logic will draw the reviewer's conclusion from my premisses. I did not assert that Marie Baumann was not worthy of cultivation for exhibitors, but that, though most beautiful, I could not recommend her to the general public. I bought fourteen plants of this Rose from Mr. Cant, who brought it out, and seven equally good from the Dorset Nurseries at Blandford. They soon wished me farewell. The reviewer's article implies that I said Madame Chirard, Etienne Dubois, and Madame Nachury are superior to Emilie Hausburg. No one who reads my article can draw any such conclusion. I never said that François Michelon was "unworthy of cultivation." I said that I could not recommend this variety and Marie Baumann to the public generally because of their deficient growth. The Blandford land is excellent. I saw a of those Roses there, and the growth was bad; the foreman told me they were not good growers. I bought six plants of François Michelon; one only—a bad plant—still survives.

Two plants of Emilie Hausburg were sent to me without being ordered. They are like the thin end of a halfpennyworth of soap after a week's wash. If any will accept them I will send them to their direction. Mr. Turner says Royal Standard is a better grower in the same line.—W. F. RADCLYFFE.

NOTES AND GLEANINGS.

WE have received a letter from Mr. Hinds relative to the proposed contest of LONDON AND LIVERPOOL CHRYSANTHEMUM GROWERS. The letter arrived too late for publication, but the following decision has been arrived at by Liverpool growers, and from which our correspondent states there will be no deviation:—"If London growers desire that the tournament shall take place in London they must furnish the sinews of war themselves, as we in Liverpool did last year. Our ten-guinea prize may appear to have been small, but then we must remember that Liverpool is not London; and in this case also we should expect a Lancashire grower to be one of the judges, for the same reason that we had the late lamented Mr. Dale from the Temple Gardens last year. If, on the other hand, the south country growers agree to meet us on "neutral ground," we have no objection to contribute to a prize to be contested for upon conditions which would place all competitors upon an equal footing."

—— OWING to the prolonged severity of the weather work is greatly in arrears in gardens, and has been almost at a standstill in nurseries for a very long time. Mr. Rivers of Sawbridgeworth informs us that he has done little besides pay wages since the 9th of December. This is no doubt the experience of nurserymen generally, for the frost has alike prevented the removal of trees in the outdoor department and the transit of plants of a tender nature from the houses. There has been a temporary recurrence of mild weather in the south once or twice since the winter commenced, but not for the ground to become dry sufficiently for work being resumed. In the north there has been no appreciable cessation of frost for a period of twelve weeks. Planting is consequently in a very backward state; but if mild and dry weather occurs towards the middle of the present month there will be a period of a month at least when deciduous trees of all kinds may be safely planted, provided—and this is important—that

the roots of the trees are kept constantly moist during the time they are out of the ground. In consequence of the exceptionally low temperature that has so long prevailed fruit and other trees, deciduous shrubs and Roses, remain in a complete state of rest, and hence they may be planted later in the spring than during ordinary years. The same remarks apply with equal or greater force to evergreens, and all those that have not been injured by frost may be transplanted for several weeks to come. The spring will be a busy one, we trust, in nurseries, as it certainly will be in gardens. The thaw which commenced on Sunday last in the metropolitan district continues, but several days must necessarily elapse before the ground is sufficiently dry to work freely.

—— An important GENERAL MEETING of the members of the National Auricula (northern section), Royal National Tulip, and National Carnation and Picotee (northern section) Societies, will be held at the old "Bull's Head" (off the Market Place), Manchester, on Wednesday, February 19th, 1879, at three o'clock, P.M. The business is to arrange date of this year's exhibitions, schedule of prizes, plan of judging, and any other matter and work connected with the management of the National Florist Societies.

—— MESSRS. WEBB & SONS, Wordsley, Stourbridge, announce that the value of the prizes, including silver cups and other plate, to be competed for at their Great Root Show in November will be nearly £500. In addition to the prizes provided for agricultural products we observe the following pertaining to garden culture. For the best collection of eight distinct varieties of vegetables, four specimens of each, the prizes are £5, £3, £2, and £1. For twelve best specimens of Webbs' Improved Banbury Onion the prizes are £1, 10*s.*, and 5*s.* For the best collection of twelve varieties of Potatoes, twelve tubers of each, the prizes are £5, £3, £2, and £1: for Webbs' Improved Schoolmaster Potato, twenty-four best tubers, £2, £1, 10*s.*, and 5*s.*; prizes to the same amount being offered for twenty-four tubers of Webbs' Improved Magnum Bonum Potato. Prizes are also offered for Carrots and Parsnips.

—— A CORRESPONDENT writing to us on CASUARINAS (Beef-woods) observes that "The genus is a curious one, the only one of its order, and with little affinity to anything but the Myriceæ. The female flowers are in cones, but these have not the coniferous structure. Of this genus in Australia Dr. Bennett says, 'Their sombre appearance causes them to be planted in cemeteries, where their branches give out a mournful sighing sound as the breeze passes over them, waving at the same time their gloomy hearse-like plumes.'" We recently noticed some young plants of C. equisetifolia in Mr. B. S. Williams's nursery at Holloway, and were impressed by their extreme elegance and distinct appearance.

—— WE have received the second annual report of the Committee of Management of THE NURSERY AND SEED TRADE ASSOCIATION. The Committee, congratulating the members on the continued successful working of the Association, observe that during the past year debts to the amount of over £1400 have been recovered and paid to the members, many of these debts having been previously considered as "bad debts." This sum represents a great improvement on last year's business. The objects of the Association are as follows:—1, To protect and promote the trade and business of nurserymen, florists, and seedsmen in the United Kingdom and abroad. 2, To collect and disseminate information calculated to protect the members of the Association (as nurserymen, florists, seedsmen, and others interested in horticulture) from fraud. 3, To arrange for the speedy and economical collection of debts due to members. 4, The establishment of unity amongst those interested in the welfare of the nursery and seed trade. 5, The encouragement of the interchange of opinions on questions of importance relating to such trade. 6, The doing of all such things as may be incidental or conducive to the attainment of the above objects, and all such objects as may from time to time be determined by the Association. For the individual protection of members there are the three following departments:—1, A department for the collection of debts; 2, a department for making trade inquiries, and for the dissemination of information generally useful to members; 3, a department for investigating matters in bankruptcy or liquidation. Mr. Charles Lee of Hammersmith is the Treasurer of the Association.

—— MR. BROTHERSTON remarks that he used to grow APHELANDRAS, but they have had to give place to other plants more useful. "Seed was saved from one or two of the plants and sown when ready, and the seedlings were grown-on without check on a shelf in the stove. A compost of turfy loam and sand was used, pots 4½ inches in diameter being found large enough to flower the plants in. The flowers brighten up the stove very much during winter, but unfortunately are no good for cutting."

—— A CORRESPONDENT ("J. C.") communicates the following, which he describes as A SURE METHOD OF SETTING GRAPES:—"Tie round a stick a piece of hare or rabbit skin 6 inches long; rub it over the bunches that set freely for the pollen, and then apply it to those that do not set well. This method will be found to succeed."

—— MR. J. P. LEADBETTER, late head gardener to Viscountess Downe, Baldersby Park, Yorkshire, and formerly general foreman at Croxteth Hall (Earl Sefton's), has been appointed gardener to the Hon. Admiral Duncombe, Kilnwick Percy, Pocklington, Yorkshire.

—— WE have received the following from the Directors of the LIBERIA COFFEE COMPANY (Limited):—"Owing to the great demand for Liberia Coffee seed and scions (young plants) for exportation to Brazil, Ceylon, Java, and other countries, the Liberia Legislature, which is now in session at Monrovia, has passed a bill whereby the following duties will be levied on all future exports—Upon Coffee unhulled, 50 cents, equal to 2*s.* 2*d.* per bushel; first hull taken off, 1 dol. 50 cents, equal to 6*s.* 6*d.* per bushel; Coffee fully prepared for market, ¼*d.* per pound; Small size Coffee scions (plants), 5 cents each, equal to 2½*d.*; large size ditto, 50 cents each, equal to 2*s.* 2*d.* A vessel sent by the Brazilian Government has just shipped from Monrovia upwards of 50,000 Coffee scions (plants) for transplanting in Brazil." Many thousands of plants of this fine species of Coffee are raised in this country for exportation, notably at Kew and in Mr. Bull's establishment at Chelsea. Messrs. Carter & Co. are also raising plants at their nursery at Perry Hill, Sydenham.

—— MR. BROTHERSTON informs us that Gros Guillaume (black) and Tyninghame Muscat (white) are proving the most satisfactory late Grapes at Tyninghame this season.

—— A CORRESPONDENT writing to us on the FAVOURABLE CHANGE OF THE WEATHER which commenced on the 2nd inst. thinks that the thaw will be a permanent one, because it occurred without a change of wind from the east. The previous temporary thaws were owing to the wind suddenly changing to the west and south-west, and frosts returned immediately the wind shifted again to the north and east. It was precisely the same, our correspondent adds, in the severe winter of 1860–1. When the thaw resulted from a change of wind it was temporary; but when it occurred with the wind still remaining in the north it was permanent, and the long and severe winter terminated.

A NATIONAL CHRYSANTHEMUM SHOW.

FROM what has appeared in the Journal during several weeks past it is evident that a wide-spread desire exists for growers of Chrysanthemums in various districts to meet together in friendly rivalry. A contest between London and Liverpool would no doubt possess interest for many; but "contest" is, nevertheless, not a particularly pleasant term, and I do not see any special reason why two districts alone should monopolise an exhibition. Why cannot Chrysanthemum growers do the same as Rose growers? Why cannot some horticultural or Chrysanthemum Society bring out a spirited schedule offering a challenge cup of sterling value open to growers from any part of Great Britain, subject to certain plain and short conditions? An exhibition of this character would be far preferable to a floral duel, and no prearranged list of varieties would be necessary. Rules for judging would be desirable, and I think few can dissent from those submitted by Mr. Bardney. As to dressing, the less that is said about it the better, provided that nothing is added to the flowers.

As the Liverpool growers evidently entertain various opinions, and do not appear to be able to agree on a definite line of action, let one of the metropolitan societies offer sufficient inducements to tempt growers from all parts; and if a Liverpool grower comes and wins, all honour to him, for he will win in good company, and honour, too, to the society who affords the opportunity for such a gathering that may be appropriately termed national. This indeed might be done

whether the proposed duel "comes off" or not; if it does occur, both events might be held at the same time and place if a room can be found large enough for the collections and the thousands of visitors who would flock to see them.—A LONDON JUDGE.

LINUM TRIGYNUM.

As frequently seen this plant is a half-starved, leggy, red-spider-eaten remnant of vegetation, represented by a solitary stem surmounted by a small yellow flower or two, which attract by their clean glossy brightness. The plant, where it has a place in a collection, would appear just too good to be thrown away, but not of sufficient value to be considered worthy of special cultivation. Yet no plant than this will give a better return for skilful culture, and none will produce more brightness during the winter months.

Amongst winter-flowering plants Poinsettias, Euphorbias, Centropogons, Epiphyllums, Eranthemums, and other stove plants are grown in all gardens where means are provided for their culture, while Linum trigynum is forgotten or neglected. Yet it is distinct in colour from all of them, and as bright in colour as any. A compact bush not exceeding 15 inches in height and the same in diameter, covered with the brightest of bright yellow flowers, is by no means difficult to produce, and when seen it must be admitted to be of great value for decoration during the dull months of the year.

Fig. 12.—LINUM TRIGYNUM.

Linum trigynum is a stove plant, and requires much the same treatment as to temperature and light as the Poinsettia. With healthy cuttings to begin with, and generous culture afterwards, dwarf compact specimens are readily producible having fresh healthy foliage and a profusion of flowers, which are successionally produced for three months during the depth of winter. During growth the plants require to be syringed freely, and the shoots must be regularly pinched until September.—J. S.

ELECTION OF PEARS.

DOUBTLESS many of the readers of our Journal will be as much delighted in this election as in those often done for Roses. "WILTSHIRE RECTOR" in the Journal, in his review of Herefordshire pomology, gives proof of the *con amore* manner he will handle such a subject.

I would suggest for consideration that the most important fact as to Pears is the bearing or cropping merits of the different varieties in bad and ordinary years. I say this because the quality of the different fruits is well known, or can be from the "Fruit Manual."

As the last three years have been bad for Pears, let the electors state those varieties that have cropped most heavily during that period; and as for their views as to quality of fruit, let them be compared in this respect with the two best known types, say Marie Louise and Williams' Bon Chrêtien, because all growers know the quality of these two varieties.

Viewing the question from this, the most important standpoint—viz., cropping, Mr. Peach's suggestion of select electors

becomes of small importance, because surely for cropping all growers may judge, and in such a case the multitude of counsellors would be wisdom.

I fear, whilst all the Pears named by Mr. Peach are excellent for quality in skilled hands, some of them will not stand high for cropping in bad or ordinary years; whilst two at least of the best croppers on Quince during the past three years he does not name—Marie Louise d'Uccle and Beurré Diel: and Durondeau is in my experience second to none either for cropping or quality of fruit.—S. S.

WANSFELL GARDENS.

AMONG the many and charming residences in which the lake district of Westmoreland abounds there is none that deserves more special notice than Wansfell, the seat of Thomas Wrigley, Esq. It is situated about four miles from the Windermere railway station, and one mile from Ambleside. The house stands on an eminence commanding a good view of Lake Windermere, with Langdale Pokes and Coniston Old Man in the distance—mountains well known to tourists. A beautiful drive, on both sides of which are some fine specimen Conifers, leads to the mansion. The gardens and grounds are tastefully laid out. On the south-west side of the house is a terrace, and the flower garden, a geometrical design on grass, is filled with spring-flowering plants. At the bottom of the terrace is a walk 300 feet long by 15 feet wide. On the upper side are six specimens of that truly noble tree Picea nobilis glauca, 40 feet high, with regular horizontal sloping branches. On the lower side of this walk a considerable portion of lawn is devoted to beds of choice Rhododendrons and Conifers, of which there are good collections, among the latter Arthrotaxus selaginoides; Cupressus Lambertiana, 50 feet high; Libocedrus decurrens, 20 feet; Picea amabilis, 50 feet; Wellingtonia gigantea, 40 feet; Retinosporas in variety, and Abies Clanbrasiliana, a very fine tree. Conspicuous among the stately Pines are a few specimens of the light Silver Queen Holly which have a very good effect. It is wonderful the growth the trees and shrubs make in the Lake district, all those noticed having been planted within the last sixteen years. Roses are extensively grown in all the best varieties.

The glass houses are six in number, besides pits and frames. The conservatory adjoining the house is not heated, so it is not gay at present. Lapageria rosea does well in it without fire heat. A little further on is a span-roofed greenhouse, 30 feet by 16, containing useful plants. The most striking are two magnificent Camellias, Alba plena and Donckelarii, full of flower; Blechnum corcovadense, Lygodium scandens, &c. At the end of this is an intermediate house or cool stove in which are grown Orchids and Ferns. Dendrobiums, Cypripediums, Odontoglossums, Disa grandiflora, Cœlogyne cristata are coming into flower; the temperature of this house is often as low as 40°, yet all the plants are looking well. Adiantum farleyense makes but little progress in so low a temperature. In the kitchen garden there is a span-roofed house 48 feet by 24, in three divisions as succession houses for the bringing forward of Peaches, Nectarines, and Pears, of which Mr. Bremner, the gardener, is a most successful grower, never missing a crop. All the trees are grown in pots. They have been in the same pots for fourteen years. The houses when filled hold 120 trees. As soon as the wood has become well ripened the trees are removed outside and plunged. One of the houses is generally filled about the new year, but owing to the severity of the weather the trees cannot be lifted. The houses in winter are employed for bringing forward bedding and other plants for the greenhouse.

The kitchen garden is not large, vegetables not being grown so extensively as fruit. Apples and Pears, of which there is a large collection, are grown in abundance. Apples are grown in the bush form, also as cordons on walls, planted 15 inches apart and trained obliquely. Pears are trained on the same system.

Mr. Bremner is an intelligent and industrious gardener, and great credit is due to him for the excellent condition of the garden under his charge. He received part of his tuition, I believe, in the gardens at Drumlanrig Castle.—R.

EDGING TILES AND FROST.

I HAVE read Mr. Luckhurst's notes relative to preserving tiles in frost, also Mr. Wylam's letter stating that he has saved his tiles this winter by the use of a solution sold by the Indestructible Paint Company, 27, Cannon Street, E.C. All Mr. Luckhurst wants is found in the solution under notice. It soaks into tiles, stone, wood—any porous substance; and so to speak, waterproofs it. No absorption of moisture can take place, and there is none to freeze.

I think anything of a glaze or paint objectionable in appearance for this purpose; but I have treated the columns of my portico (fine Portland stone) with the solution, and no deposit or change in the surface is visible; hence there is nothing to wash off.

I believe this solution is the basis of this Company's paint; and if horticulturists had my experience of its appearance and durability they would soon give up the chalk-and-water mixture which goes by the name of "best oil paint."—F. H.

YOUNG GARDENERS.

As a young gardener I was much pleased to see some remarks applicable to myself, amongst a great number of others, on page 44 of the present volume of the Journal. I felt grateful to "A KITCHEN GARDENER" for the encouragement which he so kindly offered to us. Your correspondent James Boyd wisely seconded the entreaty for improvement in the year of 1879. Allow me to support such an entreaty with a few additional remarks, which if they do not meet the approbation of everyone, there are some who know them to be only too true. The art of gardening is admittedly advancing with slow and steady steps. When we speak of the art of gardening the kitchen gardener must of necessity be included, for we have a decided improvement in this department, and there are many young men anxious to share in still further future improvements in this important department of their calling, but who have not the opportunity of acquiring a practical knowledge of the details of kitchen garden work.

Why is it that so many young men are placed for so long in one department of a nobleman's establishment, there to labour with all earnestness, and never suffered to set foot upon the spade, nor taught how to sow or what to sow, nor how to plant or what to plant? I know there are many that will agree with me when I say that I want to see those who are put in authority over us encourage us to excel in every department, take us more into their confidence, and to afford us the means so far as lies in their power for doing so. A change of employment is refreshing, and with a kind look or a kind word a man will do more work than if always shut up in the houses, for there are many young men who would delight to be "amongst the vegetables" if the opportunity was afforded. All right-minded young men appreciate the endeavours of those who encourage them to improve in every department, and who seek to render them comfortable in their bothies or garden dwellings.—S. W. T., *A Young Gardener.*

PAINTING GARDEN STRUCTURES—CREOSOTE.

ABOUT ten years since I commenced a new system of painting. I have alluded to this plan before in the Journal, and again draw attention to it, as I can now speak with greater confidence as to its success. Instead of priming with red lead I always have the wood painted with creosote before using white lead or zinc paint. This creosote is the same as is used for preserving hop poles. It is a thin brown liquid, used for what is termed the cold process. If the liquid be heated it penetrates more rapidly, so for painting purposes I use it heated. It quickly dries: it is then brown, and in a week's time it may be painted any colour you like excepting white, and for this it must be left a fortnight before painting; but if brown, lake, or stone colour it may be done in a week.

In the year 1872 I painted a part of a conservatory on the north side myself with only one coat of paint on creosote: the paint has not perished up to this time. Before discovering this plan I had an orchard house painted inside with white-lead paint: the following season it was covered with black fungus, and no washing can remove it. I painted a conservatory with creosote, and then with light paint picked out with blue. Here there is no fungus, so that this is an important quality. But the most important effect is that it preserves the paint; and as the wood is saturated with the creosote it does not absorb the paint, so that one coat lasts many years. I am sure that when this plan becomes better known it will be generally adopted.

Deal free from turpentine, painted with this thin creosote and varnished, is made to look like rosewood. I have several

doors of a house treated in this way. The cost of this creosote is 6*d.* a gallon. I purchased mine at Churchill & Williams's, Tunbridge Wells.—OBSERVER.

CHRYSANTHEMUM AND ROSE JUDGING.

As one much interested in the question of the best method of judging Roses, and as the rules drawn up by the National Rose Society are in entire accordance with what seems to me the only certain, and at the same time most speedy, way of judging, I hope that some such cognate rules as those suggested by Mr. Bardney may be drawn up and accepted by Chrysanthemum growers and judges. I think at the same time it is a great mistake to limit the competition between northern and southern growers to any fixed list. No good Chrysanthemum ought to be excluded, and no dressing beyond that of removing damaged petals should be allowed. It would be an act of great folly for the Rose societies to issue a list, say the seventy-two recently returned by Mr. Hinton, and to limit competition to only those sorts. Let the best Roses or Chrysanthemums, whatever their names may be, win, but in each case the name should be correctly given.

While on the question of judging, one of your correspondents would cut out all Roses that were not sweet. No doubt sweetness adds a charm, but why erase such Roses as Baronne de Rothschild, &c. ? besides, judges have no time to smell every Rose and to compare notes. Some prefer a La France, while another is wild on a Tea. Judgment on scents would elicit still greater differences of opinion, *me judice*.—C. P. P.

TRENCHING GROUND.

OLD gardens often have the surface soil by long cropping, the free use of manure, and other vegetable substances, rendered effete, the abundance of the decomposing matter tending to the presence and increase of predatory vermin—grubs, slugs, and parasites. Trenching to a certain extent enables the cultivator to continue upon the same ground with but slight rotation a similarity of crop for a number of years, and lessens the liability of insect and fungoid attacks by bringing fresh soil to the surface, and burying that too rich in decomposing matter well down, which more or less tends to the destruction of insects, &c., as well as of weeds. Trenching also contributes to the friability of soils, increases their staple, making more and deeper feeding ground for the plants. There is another advantage from trenching—lime and other inorganic manures have a tendency to sink in the soil, hence the trenching is a means of restoring them to the surface and bringing up substances which need exposure to atmospheric influence for disintegration, as well as stubborn substances for soil amelioration. In trenching, the soil brought up being poor, a dressing of manure should be given before bringing up the last spit. Sandy and gravelly soils are not nearly so much benefited by trenching as those that are naturally deeper and of a more adhesive nature, for there can be no advantage in burying good soil and bringing the poor soil or sandy or stony "brash" to the surface. Those who have such soils to deal with, and can gain access to a clay pit, will find a good dressing of clay of great benefit. What light soils require is weight—adhesiveness to retain water for the plants to feed upon. Clay possesses all the properties of adhesiveness, and loose garden soil that of friability; therefore it is obvious by mixing the two a soil is formed of great fertility. When trenching has been done in the autumn, lose no opportunity of turning up ground of a stubborn or tenacious nature, on dry frosty mornings, with a fork or mattock, which will expose more of the soil to the action of frost, and act destructively upon predatory vermin. In light soils breaking the surface in dry frosty weather has a beneficial effect in destroying the eggs and larvæ of insects.—A. G. P.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Forcing Department.—The prolonged severe weather, especially as the sky has been overcast, has been very trying to such crops as Carrots and Radishes, which require abundance of air and light; indeed, unless the plants are kept from drawing until the rough leaves are formed the crops are about useless. Except by linings of sweetened materials to the sides of the beds and frames frost could not be kept out, and this with covering the lights with mats, &c., is apt to draw the plants up weakly; therefore, whilst linings and protective material are necessary, no opportunity should be lost of admitting air to the frames when it is possible to do so with safety. Make further sowings of these crops as may be needed. Now is a good time to plant Potatoes in pits or frames on a bed of fermenting materials, and though the crop be somewhat later it will be considerably heavier and superior in quality to crops from earlier-planted tubers. About 2 feet 6 inches of leaves and litter, two parts of the former to one of the latter, will afford a gentle warmth, and with 6 to 8 inches of rich loam upon the bed the sets with sprouts about an inch long may be planted in rows 15 inches apart, the sets being 10 inches asunder in the rows. The tubers may be covered about 4 inches deep where earthing is not contemplated, the crop coming in a little earlier without earthing, though we mulch with a couple of inches of leaf soil or spent tan, which saves any of the tubers that may protrude through from greening. Water if necessary advancing crops of Potatoes with tepid water or weak liquid manure, but avoid as much as possible watering these and other forced crops overhead at present. Make a good sowing of French Beans in pots where space can be found for them. They must have a light position and be placed near the glass. If a pit can be spared containing fermenting materials, covered with 6 inches of soil, the surface being from 2 to 3 feet from the glass, by all means employ it in preference to sowing the Beans in pots. The rows should be 18 inches apart, and the Beans 4 to 6 inches apart in the rows, in due time earthing up the plants to the seed leaves or first joint with thoroughly decayed manure. The temperature should be 55° to 60° at night in severe weather, allowing 60° to 65° when the weather is mild, and 70° to 75° by day with sun and air. The soil for earthing up French Beans and Potatoes should be placed in a warm house for a day or two before it is used. Apply weak liquid manure liberally when the Beans commence podding, keeping the pods closely picked. Introduce fresh roots of Rhubarb, Seakale, and Chicory to the Mushroom house, and make fresh beds and plant them with Asparagus as required. Mint is in great demand in some establishments, therefore see to the supply being maintained by introducing fresh roots, also Tarragon. If Tomatoes are required early make a sowing forthwith in a temperature of 60° to 65°. Sow Celery in pans in gentle heat for a first early main crop, the plants from seed sown previously affording a very early supply for soups. Incomparable White and Leicester Red are best for this sowing, or if a large white be wanted Wright's Giant White is the best. If Leeks are wanted early or of large size sow seed in pans, and place near the glass in gentle heat. For all purposes Musselburgh is the best; Carentan is, however, much larger, and may answer for show purposes.

FRUIT HOUSES.

Melons.—When the plants have made one or two rough leaves and the pots are filled with roots, shift them into 5-inch pots, plunging the pots into a bottom heat of 80°, placing a small stick to each plant for support to such as are intended for trelliswork, and not stopping them but picking out the laterals as they show on the stem up to the height of the trellis. Plants in pits or frames for training over the surface of the beds should be stopped at the second or third rough leaf. The pits should have hot-water pipes beneath the beds for affording a bottom heat of 75° to 80°, the pipes being covered with rubble to a depth of 4 to 6 inches, and over the rubble place a thin layer of turves grass side downwards; a barrowful of soil should be placed in the centre of the bed under each light in the form of a cone, the top being flattened so that the soil is 10 to 12 inches in depth. The top of the hillock should be 12 to 15 inches from the glass. The pit walls should be limewashed, the woodwork thoroughly cleaned with soap and water, and the glass made as transparent as possible with water only; top heat of 70° to 75° by artificial means must be provided. When the plants have filled the pots with roots they may be turned out, planting one plant in each of the hillocks. See that the soil in the pots is moist before the plants are turned out, or the roots will adhere to the sides of the pots, and the plants will receive a serious check. Press the soil, which should be warm and moist, firmly about the roots, and they will take to it kindly without having to be watered. Draw a ring of quicklime or fresh soot around each plant to keep slugs at bay and to prevent moisture from settling on the stem. One plant is ample for covering space 5 or 6 feet by 3½ feet, but a reserve of plants should be kept in pots to meet casualties. On no account allow the plants to become rootbound before they are planted out, or they will receive a check which nothing can remedy. The temperature should be 70° to 75° by day, increasing to 85° with sun, allowing a fall during the night to 65° in the morning. Add a little soil to the plants raised as advised in our last calendar, shifting into larger pots those intended for trelliswork; but those for planting out in beds to run over the soil may be turned out when they have filled the seed pots with roots. See that more fermenting material is ready for making up linings or fresh beds, sowing more seed for successional crops or to fill up vacancies.

Cucumbers.—Maintain a night temperature of 65° to 70°, 5° less when the weather is severe, 70° to 75° by day, advancing to 85° with sun, and a bottom heat of 80° to 85°. Lose no opportunity of admitting air when the external air is mild, closing early in the afternoon, damping the paths, &c., at the same time. With

the increased length of day the growth of fruiting plants will be proportionally increased, necessitating more copious and frequent supplies of water at the roots, which afford in a tepid state, employing weak liquid manure if needed. Remove any superfluous or deformed fruit, thin out exhausted growths, stop the shoots, and remove any decayed wood or leaves as they appear. If red spider appear sponge the infested leaves with soapy water; and if mildew is visible apply flowers of sulphur. Both green and black aphis are sometimes troublesome, in which case fumigate lightly on two or three consecutive evenings instead of giving a strong dose on one night only. Young plants shift into larger pots as required, placing a stick to those required for trellis-work, and keep them near the glass; but those for pits or frames without trellises may be planted out from the seed pots, stopping them at the third rough leaf. The hillocks may be formed as detailed for Melons; turfy loam moderately light, with an admixture of a fourth of road scrapings and a little charcoal, form a suitable compost. Make a ring around each plant of quicklime or fresh soot as a guard against slugs and superfluous moisture.

Vines.—Those raised from eyes last spring, and which are not of a strength for fruiting or planting, should be cut back close to the surface of the soil. When they have made 2 inches of growth shake them out and repot in turfy loam rather rough; 6 to 9-inch will be large enough. A slight bottom heat is an advantage for these Vines, but is not essential, maintaining atmospheric moisture by sprinkling the house two or three times a day. Avoid fire heat as much as possible to Grapes in the storeroom, affording air to prevent an accumulation of moisture, replenishing the bottles with clear soft water as required. An equable temperature of 45° is most suitable. Gros Guillaume and Gros Colman Grapes, requiring more time to ripen than Lady Downe's, should be started by the middle of the month, so as to afford time for their thorough ripening. When well ripened, wood as well as fruit, these are the noblest black Grapes in existence.

Figs.—The shoots of the earliest forced trees in pots will require stopping at the fifth or sixth leaf, thinning the growths if necessary, as nothing tends so much to fruitfulness and quality as full exposure to light and air. Syringe the trees frequently, and water them copiously at the roots, mulching the surface of the pots with some short manure. The bottom heat should not exceed 75°, adding fresh fermenting material as the older settles down. Continue the temperatures as advised in our last calendar. Trees planted out may now be started provided they have been dressed and the house thoroughly cleaned. The border must be brought into a thoroughly moist state by repeated waterings, sprinkling the trees and house two or three times a day, a temperature of 50° by artificial means being maintained and 65° by day from sun.

Cherry House.—Continue to ventilate from and close the house at 50°, above which temperature keep up a current of air through the house; 45° to 50° is a suitable temperature by day from fire heat, and 40° at night. Syringe the trees early on fine days, and maintain a genial atmosphere by damping the borders whenever they become dry. The buds will be bursting and green aphis showing itself, in which case it must be eradicated by fumigating with tobacco on two or three successive calm evenings. With the borders in a thoroughly moist state mulch them with 2 or 3 inches of rich manure, which will induce surface-rooting, and will cause the fruit to swell freely. See that trees in pots are not neglected for water, applying that element liberally when they require it.

Pines.—Continue the treatment as advised in our last calendar to those plants which have recently started into fruit. An indication of good root-action is the sending-up of abundance of suckers, particularly of Queens, the retention of which in superabundance is a common error in Pine Apple cultivation, being prejudicial both to the fruit and the future stock. As soon as the suckers can well be handled screw out the centres of all except one to each plant, which should be left for stock; a robust sturdy sucker will then be secured—a point of considerable importance. If the number of plants in fruiting pots are insufficient for the probable demand select another lot from those plants which have been wintered in 7 or 8-inch pots, choosing the strongest and best rooted, and pot them in the best fibrous loam that can be procured, tearing it up rather coarsely, rejecting the dust. After the pots are efficiently crocked a dusting of soot or wood ashes should be given to prevent the ingress of worms. Ten-inch pots are suitable for Queens, and 11 or 12-inch for more robust kinds. Keep the plants well down in the pots so as to admit of copious supplies of water, and ram the soil firmly round the balls, plunging the pots in a bottom heat of 85° to 90°, which will speedily establish the plants in the fresh material. Be careful not to allow the heat in beds where plants are starting into fruit to exceed 90° to 95° at the base of the pots, or the consequences may be injurious.

PLANT HOUSES.

Orchids.—The East Indian house may be kept at 70° by day, 5° more from sun heat, 60° to 65° at night, the moisture of the air being proportionate with the heat. An increase of temperature must be accompanied by increased moisture, admitting air in fine weather, always at this season where practicable having it to pass over the hot-water pipes so as to become warmed before reaching the plants. Potting may now be proceeded with. Aërides, Camarotis, Saccolabiums, and Vandas are the first to be attended to, not giving the plants any water for a few days before potting, so as to admit of the old materials being more readily removed. Plants that do not require potting should have as much of the old material removed from about the roots as possible. Where baskets are used examine them; if decayed, transfer to fresh baskets rather than trying to patch up the old. The chief points to be considered in potting are clean pots well drained, filling them two-thirds with crocks placed (except the lowest) edgewise to admit of the point of the stake to keep the plant firm, and to allow the water to pass away freely; all the species delight in a great amount of moisture at certain seasons, but will not succeed without good drainage. The sphagnum must be made firm, giving sufficient water to keep it in a fresh state. Stanhopeas examine; if they have become dry immerse them in a tub of tepid water so as to thoroughly moisten the mass. Many plants do best on blocks of woods; pieces of cork, Acacia, and Maple are very suitable, as the bark of these trees retains the moisture much longer than many others; the roots, however, will cling to almost anything that can be kept damp. A little sphagnum should be placed on the block, the plant being fastened on with copper wire secured with copper nails. At this time of year the blocks should be damped twice a day. When any plants do not require shifting remove and renew the moss or peat, and plants that have been kept dry and are starting into growth steep in tepid water until they are thoroughly moistened. Phalænopses and other non-pseudobulbous East Indian plants should not be subjected to a dry atmosphere at this time of year, but be damped as required.

Greenhouse.—Many Heaths, especially those in a healthy condition, will be making growth and pushing up their flowering shoots, the roots being in corresponding activity. Any plants requiring more pot room should be potted, as early potting is strongly recommended for these plants. The hardwooded and comparatively slow-growing Ericas aristata, Devoniana, Marnockiana, and others of this nature, should not have such large shifts as the more free-growing kinds, and they require peat of a harder or more sandy nature. The fast-growing kinds should never be allowed to become very much rootbound, and they require less sand in the peat and a more liberal shift than the hardwooded species. Drain the pots well and pot firmly, not giving any side air for a few days after the plants have been potted.

Camellias very often, especially when planted out, become thin and straggling, or its opposite an absolute thicket. This may be rectified by cutting a portion of the plants down, when they will soon form good heads. If planted out and the plants are too thick, thin them out and place them in pots or tubs: their removal will allow room for those retained to develope themselves to advantage. Camellias in pots requiring a shift into larger should have it before growth takes place, so as to have their roots in the fresh material by that time, or the season's growth will be affected injuriously. In potting Camellias drain the pots well, make the fresh material as hard as the ball, and allow space for watering proportionate to the size of the plants. The whole stock of plants should be gone over with a sponge and hard brush—a toothbrush answering—freeing the leaves of dust, dirt, and scale, doing it carefully and well before the plants commence growing.

Azaleas.—The plants for the most part will have cast the leaves that fall annually in winter; remove the fallen leaves together with any that are decaying. Around the base of the flower buds fresh growth will be pushing—an indication of good health, and one in no way interfering with the flowering provided the buds were well ripened in autumn, and with this increased activity a little more water will be needed at the roots. Plants required for late or successional flowering should at once be placed in a cool house, frost being merely excluded. Any young plants desired to be grown on quickly should not be allowed to flower, but should be placed in heat at once, so as to give them as long a season of growth as possible, by which they will make double the growth of plants started later in the season.

Plants of Fuchsias that flowered last year and which have been kept dry prune well back, place in heat, and when they have grown an inch or so repot; they will precede the summer-struck plants and be very useful. If a few pots of Liliums auratum and longiflorum are introduced to gentle heat the plants will flower early. Introduce a few plants of Primulas denticulata, cortusoides vars. nivalis, intermedia, &c., to the greenhouse; they are very pretty. Sow Cyclamen persicum vars. in brisk heat, and pot-off autumn-sown plants, keeping them near the glass in gentle heat.

TRADE CATALOGUES RECEIVED.

E. G. Henderson & Son, Pine Apple Nursery, Maida Vale, London.—*Illustrated Catalogue of Flower, Vegetable, and Agricultural Seeds.*

James Carter & Co., 237, High Holborn, London.—*List of Novelties for 1879.*

M. Bruant, Poitiers (Vienne-France).—*List of New Plants for 1879.*

H. G. Smyth, 10, Castle Street, Long Acre, London.—*List of Manures and General Garden Requisites.*

John Cattell, Westerham, Kent.—*Catalogue of Vegetable and Flower Seeds.*

TO CORRESPONDENTS.

***** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.**

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

WORK ON MARKET GARDENING (*A Subscriber*).—We do not know of any work specially devoted to market gardening. Any work on gardening generally will afford you all the information you require, and the nature of the crops to be cultivated must be regulated by the demand in your local markets. There is no difference between market gardening and private gardening, except that the produce of the former is for sale and that of the latter for private consumption.

FLOWER BED ARRANGEMENTS (*F. W.*).—Your list of plants does not afford suitable variety for carpet bedding, nor would we advise it in the four circles. Much better would it be to fill them entirely with old plants of Fuchsias, turfing over the central star and planting a Pampas Grass or specimen Conifer in its centre. This would make an agreeable break, and the beds of Fuchsia would give due importance to this central clump and afford a pleasing contrast to the ribbon beds. Pyrethrum Golden Feather might advantageously be replaced with blue Lobelia around Begonia weltoniensis. Several modes of planting carpet beds have appeared in our pages, and other designs will be given from time to time.

PLANTS DECAYING (*W. N.*).—The Echeveria we have received has been injured by frost. The application of gas tar to hot-water pipes is highly dangerous; indeed, it should not be applied to the interior of any part of a house containing plants. A few years ago we saw many hundreds of Pelargoniums ruined in consequence of the stages of the house having been coated with gas tar.

TUBEROUS BEGONIAS (*J. A. C.*).—If you have well-heated and light structures for growing the plants on without receiving any check, you may start the tubers into growth any time during the present month, otherwise they had better remain in a resting state until March or early in April. They must not, however, be kept dust-dry even when resting. If you send 3½*d.* in stamps to the publisher and ask him to send you No. 880 of the Journal, published on February 7th, 1878, you will find an excellent article on the cultivation of these plants.

ADIANTUM TENERUM (*H. J., Clevedon*).—It is pleasure for us to examine such good specimens as you send; they are very different from sporeless fronds and flowerless and withered sprays that are often sent to us for identification. A very careful examination of the frond only confirms our previously expressed opinion that your Fern is none other than the species named above. We have compared it with several growing specimens, and we have no doubt whatever as to its identity. The "upright" growth to which you allude only refers to the tall and generally upright character of the stems, the fronds when matured being drooping and very graceful. This Fern is correctly described as having creeping rhizomes, but they are not visible the same as those of Adiantum Capillus-Veneris. A. farleyense has also creeping rhizomes, but like those of A. tenerum and most other Adiantums, they are produced beneath the surface of the soil in which the plants are growing. A. tenerum is a very stately and elegant species, and the fronds you have sent us of it indicate that your plant is in excellent condition.

POTTING BULBS AND PLANTS (*F. G. O.*).—Your letter of inquiry arriving just on the eve of our pages going to press, we could only give a hurried and general reply last week. The bulbs should remain in the frame or other similarly cool position, plunged and covered 4 or 5 inches deep with fibre until the pots are fairly filled with roots, when they may be removed to a light position in the greenhouse. The pots containing crowns of Lily of the Valley may be placed on the flue plunged in fibre, the crowns also being covered 2 or 3 inches deep with the same material. The Spiræas may also be plunged there, but the crowns must not be covered more than half an inch deep. The fibre must be kept thoroughly moist, especially at the base of the pots. As the plants grow they will require copious supplies of water, especially the Spiræas, which can scarcely have too much when they are advancing towards the flowering stage. Provided the soil was healthily moist when the bulbs and crowns were potted, and the plunging material is kept moist, no water need be poured in the pots until they are removed from the fibre. Last year we planted Tulips in well pulverised soil in the open garden at the end of January, and they succeeded admirably; but as you cannot plant during frosty weather or when the ground is wet, you had better pot the bulbs, or you may place them closely together in boxes and transplant them from the boxes during favourable weather (if it occurs), towards the middle or end of the present month. We are glad to hear that our advice respecting the flue has proved so useful. Do not let the temperature of your house exceed 50° during the day by fire heat alone, nor 45° at night.

RHUBARB (*R. Oliver*).—The different sorts of Rhubarb do not always come true from seed. It will come into use about the second and third year.

MELONS IN GREENHOUSE (*G. T., Oswestry*).—As you have succeeded so well in growing Cucumbers there is no reason why you should not also succeed in growing Melons. Hardy varieties, such as Little Heath, certainly require no more heat than Cucumbers. We have had no difficulty in ripening this variety in frames to which no artificial heat was applied, by planting strong plants about the middle of June.

VARIEGATED CŒLOGYNE (*Old Subscriber*).—We have never seen a variegated-leaved Cœlogyne of the kind you mention, and we do not think it will be of much ornamental or commercial value. Apply lime liberally to your Cabbage and Broccoli ground to prevent clubbing. A dressing at the rate of 50 bushels per acre will be a suitable quantity to apply. It cannot be applied too fresh from the kiln.

HEATING A RANGE OF HOUSES (*A. B.*).—In a work of such magnitude you had better consult a hot-water engineer.

ROSES FOR EXPOSED SITUATION (*A Regular Reader*).—Maréchal Vaillant, Paul Neyron, Baronne de Rothschild, Sénateur Vaisse. These are all free growers and have large flowers. You must not peg the shoots down this year, but on the contrary prune them rather closely towards the end of March, and then if they make strong growths they may be pegged down next winter.

HEATING CUCUMBER HOUSE (*Puddle*).—The highly heated state of the pipes is proof that the boiler is not defective. In order to heat your house sufficiently for growing Cucumbers early in the season you require two additional 4-inch pipes for affording top heat. The two pipes ought to heat the bed sufficiently unless they are surrounded by an excessive quantity of brick rubble, which absorbs a great amount of heat. Your house is only heated sufficiently for growing Cucumbers in the summer and preserving greenhouse and bedding plants in the winter.

BLACK CURRANTS UNSATISFACTORY (*L. L. D., Daleville*).—We have carefully examined the buds of the Black Currants and cannot find any signs of insects. The growths sent indicate that the bushes are in a debilitated state. We have had bushes in the same state as yours appear to be. Knowing that healthy growth could never proceed from shoots so weak and unsatisfactory we cut every alternate bush down within a foot or two from the ground, and covered the surface of the soil with rich manure, not digging it in. Fresh growths issued from the old stems so freely and grew so luxuriantly that we cut down the remaining bushes. We have since gathered excellent crops of fine Currants. We further found that cuttings of such shoots as you have forwarded never produce healthy trees, but cuttings from the stronger wood, produced by the means indicated, formed healthy fruitful bushes.

CRUSHING BONES (*E. B.*).—It would be hardly worth your while to keep a bone-crushing machine for the quantity of bones you have. We know that in some parts of the country people send them to the bone mill and have them crushed, for which a charge is made as in the case of grinding corn. We think your ironmonger would have no difficulty in procuring a machine if you state your requirements to him.

LARDIZABALA BITERNATA (*E. H. Dowson*).—The plant named, of which you send a spray, is a native of Chili, extending as far south as Concepcion. From the stems a tough fibre is obtained, used for making cordage, and the sweet edible fruit is sold in the markets. It is hardy in this country. Out of doors the young stems assume a rich black tint in summer, and the leaves are always a handsome dark green. Indoors it is sometimes useful for covering a large surface. An allied plant, Stauntonia latifolia, is also hardy and useful indoors and out for similar purposes.

HEATING A SMALL GREENHOUSE (*W. B. W.*).—You cannot do better than to obtain a small saddle boiler and heat your house by hot water.

STOPPING MELONS (*North Yorkshire*).—For training to a trellis do not stop the plants until they have grown two-thirds the length of the space to be occupied, all the laterals up to the trellis being rubbed off as they appear. Fruit will show upon the laterals at the second or third leaf; if not, stop them at the third leaf, which will induce sub-laterals showing fruit plentifully, then stop the growths one or two joints beyond the fruit.

COVERING MUSHROOM BED (*Idem*).—There is no need to cover the bed with hay as it only harbours woodlice, though some growers cover the beds to maintain a more equable moisture and temperature. We attribute the disappearance of the buttons to the watering, which has probably been too heavy and cold. The surface of the bed should be kept moist by sprinkling it lightly with water a few degrees warmer than the temperature of the house, being careful not to apply the water over the Mushrooms.

CARROTS FAILING (*Idem*).—The ground being very strong and wet an addition of sand thoroughly incorporated with the soil will be an advantage; but as all you complain of is the Carrots coming thin, we presume that the surface was not made sufficiently fine to insure the germination of the seed, or the young plants were probably devoured by slugs. Dust the plants so soon as they appear with soot or quicklime.

VINES MILDEWED (*M. P.*).—Sulphur and quicklime applied to the roots will not do any good. See that the border is well drained, and remove the surface soil down to the roots; if these are deep lift and embed them in fresh compost of turfy loam with a tenth of old mortar rubbish, and a twentieth part each of half-inch bones and charcoal, not covering the roots more than 6 inches deep. Remove the loose bark from the Vines, and dress the rods with a mixture of 1 lb. of soft soap to a gallon of water, adding flowers of sulphur to form a cream, applying it with a brush to every part. If the mildew appear during growth dust the infested parts with flowers of sulphur, which will subdue it. Is the house well ventilated?

PLANTING SEAKALE (*Idem*).—Just the growing point of the crowns should be cut off when the roots are planted. This will prevent the plants flowering, and tend to earlier ripening of the side crowns, which should be thinned to two or three upon a plant according to its strength. The thinning should be done early so as to assist the development of the crowns retained. If the plants are small one crown only should be left.

ORCHARD HOUSE ("*Old Sub.*").—The pitch of the roof is too steep; 8 feet 6 inches from centre to ridge is ample, the sides being 5 feet—viz., 1 foot of brickwork and 4 feet of glass. You show no means of ventilation: this should be at the sides of the house, an opening not less than a foot wide the whole length of the house. We should form the ventilators of wood shutters just above the brickwork, or the side lights may be framed to open; every other sash in that case may be sufficient hinged at the top opening outwards. The door, instead of being 5 feet in height as shown, should be 6½ feet.

FLUE FROM BOILER FOR HEATING PIT (*A Subscriber*).—The proposed arrangement will answer well for heating a pit of the dimensions given for growing Cucumbers and Melons in summer and preserving plants in winter. The flue must not be depressed from the top of the boiler, but should be taken forward with a slight rise, and must not be less internally than the chimney now employed to carry off the smoke, which will be determined by the size of the boiler. A flue 9 inches wide and 12 inches deep would probably be large enough.

BREWERS' HOPS FOR HOTBEDS (*Hallamshire*).—They as a rule heat violently and are of short duration, but we have not used them for the purpose to any extent. Can any of our correspondents oblige us with information as to how to make a hotbed with hops for striking cuttings, &c.? and would such a bed be suitable for growing Cucumbers and Melons?

CALADIUM TREATMENT (*T. Watson*).—Your treatment of the corms is right. Keep them in the stove with the soil just moist, as when allowed to become dust-dry the roots are liable to become farinaceous and to rot when water is applied in spring. They will start into growth shortly if the corms are sound, or growth may be facilitated by placing the pots in bottom heat, maintaining also a warm moist atmosphere.

TEA-SCENTED ROSES (*St. Edmund*).—Most of the Tea Roses require protection in severe weather. Some of the finest for buttonhole and bouquets are Madame Bonnet Eymard, Madame Chaveret, Madame Joseph Halphen, Mons. Furtado, Niphetos, Shirley Hibberd, Souvenir d'Elise, Nisida, Madame Willermoz, Mdlle. Thérèse Genevay, Catherine Mermet, Anna Ollivier, and Duchess of Edinburgh.

IMPROVING LAWN (*An Irish Subscriber*).—The weed was too much shrivelled for identification. From your description of the lawn and the condition of the soil accompanying the weed we think the lawn would be best broken up, first seeing that there is no need of drainage; or if there be drain thoroughly, and then have the ground deeply dug or better bastard trenched, which is paring off the surface a few inches deep and placing it at the bottom of the trench, and then turning a spade depth of soil upon it, presuming there is that depth of good soil. After a few weeks' exposure to the atmosphere a good dressing of manure should be given and forked in, throwing the surface as even as possible, and by raking a good tilth should be formed for laying down fresh good turf or sowing grass seeds. A suitable mixture for such a soil is Cynosurus cristatus, 12 lbs.; Festuca duriuscula, 6 lbs.; F. tenuifolia, 4 lbs.; Poa nemoralis sempervirens, 4 lbs.; P. trivialis, 4 lbs.; Trifolium repens, 8 lbs.; T. minus, 2 lbs.; and Lolium perenne tenue, 20 lbs., in mixture per imperial acre. Sow in April, lightly rake the seed in, and pass a roller over the ground. For forming a lawn from seed and subsequent management see our number for January 9th, page 30.

CLIMBING ROSES (*R. B. B.*).—If you require Roses of a rambling nature that will cover space quickly and produce dense masses of bloom in summer, Amadis as a crimson and Thoresbiana as a white will suit you. If you want more choice and less rampant growers you will find Cheshunt Hybrid, purplish crimson; Belle de Bordeaux, pink; Madame Willermoz, white; and Sombreuil, white tinted rose, suitable. Belle Lyonnaise, canary yellow changing to white, is a fine Rose for a wall; it is a seedling from Gloire de Dijon.

NAMES OF FRUITS (*John Byrd*).—Beauty of Kent. (*O. M. A.*).—Napoléon. (*J. Paton*).—Bergamotte d'Hollande. We do not know the Apple. It seems to be a local variety.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

BREEDING AND REARING OF FARM HORSES.

(Continued from page 89.)

IT is essential that a duly qualified veterinary surgeon should be in attendance at the time of parturition, not only because the mares are of great value of the breeds which we recommend, but also in consequence of the value of the foals, for it often happens that in case only unskilled and ignorant persons are entrusted with the care of mares at foaling time the loss of valuable lives occurs. When near to the time of parturition the mares should be seen at least once during the night time. When parturition has been safely effected the foal should then be assisted to suck. This often requires the exercise of patience on the part of the attendant; still it is time well employed, some foals being lost if they are not able to obtain nutrition without assistance. The mare and foal will now be required to remain together in their roomy box or barn mow until the foal is about ten days old; but then, if it is healthy and the mare doing well likewise, they may be let out into a sheltered paddock for a few hours during the day in order that both may become accustomed to the open air; they should return to house quarters at night time. This mode of treatment should be continued until the beginning of the month of May, when they may be allowed an open yard and shed to lie in at night, but on no account to be allowed to lie out at night in the pastures, particularly in low damp meadows, and especially if they are situated beneath the fog level in the valleys, because in such situations we often have night frosts even after midsummer. As long as they are kept in a house or yard at night time the mare should be fed for the first fortnight upon bran mashes and hay chaff, and a small quantity of cooked roots in admixture with a small quantity of crushed Indian corn and oatmeal, in order that a full supply of nutritious milk may be available for the foal. As the foal gets stronger the mare may be fed upon the usual allowance of dry food with oats and beans crushed, and good hay chaff mixed with a small allowance of pulped Swedes or mangolds, say 15 lbs. of Swedes and 10 lbs. of mangold per day. The mare will then be enabled to do some light work without injury, such as tillage work, but not heavy draught, near home, so that she may have access to the foal, from which she must not be absent more than five hours at one time. As soon as the foal begins feeding it may be supplied with such food as it will eat most readily in the absence of the mare. Some owners allow the foal to follow the dam whilst at work in the fields, but this we consider bad management, because the foal is liable in such a case to a variety of accidents; but instead we prefer that the mare should return to suckle the foal at mid-day. There is then no excuse for the men in charge to overwork the mare, which if persisted in often injures her, and sometimes renders her milk unwholesome, and thus injuring the foal also. As soon as the green crops are ready for use, such as rye, trifolium, or mixed vetches and oats, the mare will be fed upon these in addition to the crushed corn instead of pulped roots. Trifolium is, however, the best green fodder for horses of any age. The above mode of feeding applies chiefly to arable farms, but where there are good pastures the mares may be worked for five hours and then run with the foal into the grass land, returning, however, to the box or hovel at night. This will not injure the mare, but will keep her in working condition. The two extremes should be avoided of overwork on the one hand and a lazy indolent life in the pastures on the other, because horses under any circumstances, being expensive to keep, ought always to earn their living or part of it, and this can be done as above stated without damage to either mare or foal, especially if the pastures are well and securely fenced.

We have now arrived at the point when the foals may be weaned, which is best done at from five to six months old, the mare being removed from the foal and the foal allowed to occupy for a short time its usual night quarters. After about a week the foal will forget the dam and be quite contented when it has good food and gentle treatment, and may be turned out night and day in summer time in company with one or more companions, in a securely fenced paddock with plenty of grass, and receive a daily bait of crushed oats and beans in addition. This mode of feeding not only improves the growth and stamina of the foal, but it accustoms it to the treatment of the men in charge, for it is really essential that the young animals should look with pleasure and gratification to those who have to feed them. This will go far to make them yield to the requirements of the man in charge when the period arrives for breaking them into work. Horses, like most other animals of the home farm, will yield to kind treatment, and on the other hand, resent any rough or bad usage. As soon as the night frosts commence in October, instead of lying-out at night they should be accommodated with a well-littered shed and yard. The shed should be 12 feet by 12, under cover, the yard to be 12 feet by 20 feet outside, the fencing to be larch fir poles entire, about 5 or 6 inches through; three or four of them 20 inches apart will prove the strongest and cheapest fence, sawn timber being apt to break. The manure when the pens are floored with earth may be allowed to accumulate under the animals. Two foals may be placed in each of the apartments until they are a year old, when one animal in each will be best, and the pens should adjoin so that the colts after being separated may still enjoy each other's company by licking and caressing through the horizontal-poled fence. This method of treatment of young horses will commend itself to the home farm manager, not only on account of the manure being retained, which is important with all well-fed stock, but they are here as safe from accident as it is possible for them to be, and at the same time they will have, including the time which they enjoy in the pens, as much exercise and liberty as will contribute to their health and activity. The feet of the colts also from being much on the damp straw will be found to expand and grow in the best possible form required to enable them to endure farm work.

It is a very common opinion that a certain quantity of grass

land is indispensable for the breeding and rearing of horses, and it may, no doubt, be done cheaper and with less trouble where there is a good run for the animals on pasture land. But we have proved for twenty years past that valuable horses may be bred on the home farm when it contains but little or no pasture land, for we have on various farms reared splendid cart colts which have never been off the straw from their birth until the time of sale, or entering on the work of the farm. The shed and yard attached as above described was the accommodation they received and no other. The advantage of this system and when the animals are fed entirely from the produce of arable land is great, for they are never subject to injury as they often are when feeding on the pastures, either by breaking through fences or gateways; but when they are kept entirely in the shed and yard they enjoy a complete immunity from accident, and have been turned out for sale of great value without spot or blemish. When reared in this way they are so constantly accustomed to those who tend them, that they become as docile and gentle as pet lambs, which is of great consequence when they come to be broken for work, for they have no fear of men if they have been well treated in the boxes, &c.

When the colts are first harnessed they should be led about for an hour or two a day with the harness on before being set to work. The best work for them at first is to walk without much draught side by side with quiet horses attached to the plough, they will soon begin to pull and do their share of the work. It is, however, an open question whether they should be driven in blinkers or blind halters. On some farms we have used them so, and they show less fear from noises or sudden disturbance of any kind, because then they can see and estimate all occurrences without fear or trepidation. Colour of horses is of consequence, for although it is commonly observed that a good horse is never of a bad colour, yet some proprietors of home farms are very particular and like for the team horses to be matching in colour; and this object is much more easily attained with horses than in shorthorned cattle, because if the parentage of the breeding animals of a pure pedigree can be proved to have been of a certain colour, say chestnut for Suffolks and bay for Clydesdales, it is next to a certainty that the offspring will prove of the same colour as the dam and sire.

WORK ON THE HOME FARM.

Horse Labour.—Between the spells of frost the horses in the southern districts have been enabled to fallow-plough in those fields where the work was in arrear. Having been over much land lately in different districts we notice, particularly in the loamy soils, that owing to the unfavourable seasons for cleaning the land which have prevailed for the past three years that much of the land coming in course for root crops is very foul and encumbered from couch grass. A very good plan in the ploughing is that of back-stetching instead of ordinary fallow ploughing, and we certainly recommend the former in preference to the latter, because the furrows lie elevated, so that the frost and alternations of weather have a much greater effect towards lightening and ameliorating the land, which not only causes it to work freer, but also enables the drag-scarifier to enter the ground better and the more effectively to comb out the roots of couch and other weeds. The work of back-stetching consists of ploughing a furrow and turning it back again with another furrow at the same operation, so that all the land is moved, and instead of the furrows lying as usual they lie in doubles, one upon the other; a considerable portion of the subsoil is thus acted upon by frost, and at the same time the land lies dry because any excess of rain immediately it falls sinks into the subsoil. Fallow ploughing is generally much in arrear in consequence of the snow and frost setting in so early in the month of December. Occasional thaws have occurred in the south between the periods of frosty weather, but in the north work has been at a complete standstill for many weeks. In various parts of the country the wheat sowing was not completed before the snow and frost commenced. In sowing wheat after the severe frost we fear the land will be found too light and hollow for spring wheat to flourish unless we have heavy rains in February. We have always found that when the land works light large quantities of weeds are sure to vegetate and injure spring-sown wheat, therefore the land had better be sown with barley, which grain delights in a light fine tilth. In either case the corn should be drilled at 1 foot apart; this will give room for horse and hand hoeing, the only way of destroying the weeds. Where clover seeds are to be sown they may be hoed-in whilst the work of destroying the weeds is being effected.

Hand Labour is now required in various ways, such as hedging, ditching, banking, and planting whitethorn for hedges. These should never be planted on a bank or at the side of a bank, for a new-made bank of turf often gives way, and the whitethorn must fall with it. We prefer planting the thorns in well-dug soil raised about a foot above the level of the ground. Strong plants taken up out of the woodlands are best, and when set into a trench dug deep enough to take plants with large roots they make a fence much sooner than plants from the nurseries. Some of the woodland plants are rather large, but they should be cut down to within 12 inches of the ground; they then strike out new branches very thickly, and soon form a strong fence. When the usual sized nursery plants are set it is best to plant them in a double line; this makes the fence close at the bottom, and impervious to sheep and small animals. Trussing hay for sale and delivery whilst the labourers and horses too are somewhat at leisure should now be effected, so that when the busy spring time comes the ordinary and valuable labour upon the home farm may not be displaced or delayed. The shepherd shaving down ewes under their care will now have an anxious time for some weeks. Our shepherd for many years at lambing time has had the assistance of an under shepherd, so that by going to bed at ten o'clock and rising at four o'clock the stock is not left for many hours during the night, the shepherd and his assistant taking turns in night duty. The shepherd's house on wheels should be fitted with a stove inside in order that the shepherd may be protected from extreme cold, and also be enabled to help and resuscitate young lambs, which in severe weather may be lost unless artificial warmth is at hand at the right time. All kinds of young cattle are now when properly managed safely kept in sheltered yards and sheds. Their food should consist of meadow hay and straw cut into chaff and mixed with a few pulped or grated Swedes or turnips, the cabbages being reserved for the in-lamb and lambing ewes, and the mangold kept for future use. It is desirable to ascertain how the mangold has kept in heap during the late severe weather, and if necessary more covering should be added to the heaps. The fatting cattle must still be attended to, and it should be borne in mind that it is the master's eye which fattens the ox.

POULTRY EXPERIENCES.

I SEND you an account of my poultry keeping for the last year and shall be glad to know if you consider the results satisfactory I commenced by building a wooden house 8 feet by 6 feet, roof boarded and tiled, with a wired-in run 7 feet by 20 feet, in which I kept a cock and six pullets, a cross-breed between Brahma and Dorking. I found them extremely good layers, and so little inclined to become broody that I had to buy two hens for sitting. In April I purchased twelve Dark Brahma eggs and hatched eight of them; four turned out pullets and three cocks. I kept the pullets and the best cock, the other two cocks I sold. They were hatched on the 20th of April, and the pullets began laying on the 30th of November. Two of them have become broody early this month, and I have allowed one to sit. I am very partial to Brahmas, as they are fine handsome birds and extremely docile, but I do not approve of their getting broody so early. Can it arise from too high feeding? I give them barleymeal in the morning mixed up warm with kitchen scraps; barleymeal again at mid-day with a little buckwheat mixed, and whole corn in the evening, barley, wheat, and in cold weather a little maize.

Two chickens suffered from cramp when about a month old. I cured them by keeping them warm and bathing their legs in hot water several times a day. One pullet had weak legs, I cured her by administering bone dust; then she had a kind of roup, which I cured with tincture of aconite.

Now there is one thing I want to overcome but cannot succeed in doing—that is, any feathers that may be lying about the fowls greedily pick up and swallow; they also eat the hay out of their nests, and of late I have found some of the eggs have rather thin shells. One bird has always laid eggs with thin rough shells. They have laid extremely well all through the severe weather we have had, but during the last week have fallen off greatly—*i.e.*, from ten to thirteen eggs a day they are now reduced to two or three, and I am at a loss for the reason. Some of last year's birds began laying again in December after moulting. They have sand, ashes, and lime, with plenty of green food given them in their runs. I was careful to have all snow and ice cleared away, for they would eat it if they had a chance. I frequently let them out of their runs into the garden.

I had to build a second house last summer for the chickens. It is 4 feet by 6 feet, with a run attached 8 feet by 25 feet. In this I now keep the pure Brahmas—one cock and four hens; in the other are seventeen hens and no cock, as I did not wish to breed from them. Shall I do right in discarding the crossbreds and keeping to the pure Brahmas only?

RESULTS.

	Eggs.	Hens.	Eggs set.	Chickens hatched.	Reared.	Remarks.
January	116	6				
February	118	6				
March	145	6	11	2	3	All reared to maturity.
April	161	6	38	26	26	
May	189	10				Four hens bought.
June	195	12				Two hens bought.
July	168	11				One hen died.
August	147	10				One hen killed.
September	116	9				Three hens given away. Two pullets laying.
October	36	7				Two ceased laying.
November	48	9				Two pullets laying
December	200	21				Mostly pullets.

EXPENDITURE.

	£.	s.	d.
Cost of seven birds purchased, six pullets, and one cock	1	8	0
Paid for food	7	12	11
Sitting of Brahma eggs purchased	0	10	6
Interest of cost of houses, &c.	1	0	0
Two broody hens	0	7	0
Four hens purchased	0	8	0
Profit	3	17	11
	£15	4	4

RECEIPTS.

267 eggs sold	1	10	0
1372 eggs used	5	14	4
Fifteen birds killed	2	5	0
Three birds sold	0	11	0
Value of manure	0	10	0
Value of twenty-two birds in stock	4	14	0
	£15	4	4

—F. C. TAYLOR.

[We consider your report very satisfactory, and thank you for sending it. We are in difficulty how to comment on it. We attribute much of your success to keeping young birds; it is the neglect of this that causes so much disappointment. Another element in it is the contribution of green food, and the occasional run in the garden. We do not care for buckwheat as food; it is too fattening. With that exception we cannot improve your dietary. It is difficult to prevent birds from becoming broody, and it is seldom worth doing. It is the natural period of rest. The cramp and weak legs would seem to point to insufficient feeding when they attack chickens of a month old. These may be cured by giving them strong beer to drink and nourishing soft food to eat, such as dough, curds, bread and milk, and chopped meat scraps. You do well to let your pullets sit. Our experience is, the earlier chickens are hatched the easier they are to rear. You must prevent them from eating feathers and hay by giving them green and cooling food. The hay often forms a ball in the crop, and they become cropbound from it. Let them have plenty of lime that the shells of the eggs may be well formed.

We are always advocates for a pure breed, and therefore advise you to get rid of the crossbreds and keep the pure ones.

We are glad to read your item for birds killed. It is the proper way to dispose of the surplus. It is seldom viewed in the right light: these old birds weigh from 5 lbs. to 7 lbs., sometimes more, and at 8*s.* each they provide material for quantities of soup, or, properly dressed, dainty and delicious food at 6*d.* per lb.

We have yet much to learn, and such details as you supply are helps by the way.—EDS.]

ON page 73 you ask for results of attempts to hatch and rear chickens during the severe weather. We have had intense frost from December 4th until February 2nd. On January 6th I set a Brahma hen on six eggs in an outhouse. She sat very close, never leaving her nest more than once a day for about five or ten minutes. Five out of the six eggs were hatched on the morning of the 27th, and the chickens are now very strong and healthy. Instead of feeding the hen on soft food during the period of incubation as usual, I fed her on corn. The chickens I have fed on hard-boiled eggs and bread crumbs, beer and bread, and bread and milk, feeding them three or four times a day. I had six chickens hatched at the end of September, which have done very well in spite of the cold. Indeed I am now fattening two cockerels, and shall kill them in a week or so.—ROBERT B. BILLINGE, *Ulverstone.*

I SEE by a paragraph in your Journal that you would like to know results at hatching and rearing chickens. Here is mine, which I hardly think worth reading. I set a hen on—(I think December 4th; I know the chicks should have appeared on Christmas day)—six eggs, and the result on Christmas day was four dead birds in shells, two hatched; one of these died before night, and the one left lived three weeks. I attribute the loss to the severity of the weather. The hen was a cross between Cochin and Dorking.—J. TORRY.

SCARBOROUGH POULTRY SHOW.

WE have often written in favour of local shows where they comprise a considerable area, and our belief in their use was fully confirmed by the sight of a most excellent show at Scarborough held on Wednesday and Thursday, 29th and 30th ult. Birds were eligible from the whole of the North and East Ridings, and some of the classes were of great merit. The building in which the Show was held is an admirable one for the purpose. The Pigeons were in the gallery, and the poultry in the body of the hall, all in single tiers on one level. They were shown throughout in pairs of cock and hen.

Dark *Brahmas* headed the list, and were an excellent class. The cup went to the first Darks, a grand pair; the cock immense and good all round save in hackle colour, which was a little yellow; the hen large and beautifully pencilled. There were some good pens of Light Brahmas, though hardly equal to the Darks. Many of the *Cochins* were out of condition; the cockerel in the first pen of Buffs was of a very even canary colour. In the other class capital Whites were first. *Dorkings* made a good class. First were very fine very dark birds; second Darks again, the cock deep-breasted and excellent in form. A pretty pen of Silvers ran this pen hard. *Game.*—The first Black Reds were good, but several pens in this class were too small in size and too heavy in hackle for the present taste in Game. Brown Reds were very good, both the winning pens being stylish and in lovely bloom. *Hamburghs* were the feature of the Show. First came thirteen pens of Golden-pencils. The hen in the first-prize pen was very beautiful. Silver-pencils numbered only five pairs. The winners were all good. The second-prize cock had a beautifully laced tail, though he was not in good condition. Golden-spangles were the best class of all, numbering seventeen pens; the winners were quite first-rate, and several of the highly commendeds were up to a high average. Silver-spangles were again very fine; there were sixteen pairs entered. Many of the cocks were faulty in comb, but both the winners were extremely good in this respect, mated with finely mooned hens. Blacks were hardly so good. First a good pen all round; second the greenest hen in the class, but mated with a squirrel-tailed cock. An otherwise good pen in this class was passed on account of the suspicious look of the cock's comb. *Houdans, Silkies* and *Spanish* were poor classes. Fine Silver Polands were first in the Variety class and fair Malays second. Game *Bantams* were very numerous, twenty-eight pens. Small and neat Black Reds first, and stylish Piles a little too large second. Silver Sebrights were first in the Variety Bantam class, and Blacks second. There were several pairs of Blacks in the class spoilt by the very ugly combs of the cocks. A class for farmyard cross birds was a magnificent one, and showed that the production of useful table poultry is thoroughly understood in the district. Twenty pairs appeared, hardly a bad bird among them. The Judge evidently looked out for those birds which would be best for table use. The winners were fine specimens of Brahma-Dorkings, having much of the Dorking form, few feathers on the legs, yet having immense size added by their Brahma blood. Aylesbury *Ducks* were fair, Rouens very good. The competition in this class was close and perplexing. In the Variety Duck class pretty Spotted-bills were first, and Carolinas not in good plumage second. Two Musk Drakes were sent as a pair, but of course were not noticed.

Pigeons were not up to the general average of the poultry, but there were several super-excellent birds among them. The first Pouter—a Blue-pied—was extremely good, and a special prize for the best bird exhibited by an inhabitant of Scarborough went to it. The second Pouter too, a White, was a very stylish and elegant bird. The Fantails were but poor, the first Red Barb good. The best class in the Show was that for Jacobins. Two beautiful Reds won—birds which might be in the prize list of any show; there were two other nice Reds among those highly commended. The first Magpie—a Black—was very bright in colour, and the two first Dragoons, a Blue and a White, both fine in form. Turbits and Antwerps were moderate. A Mottled Trumpeter and a White African Owl won in the Variety class.

The Show was excellently managed, and seemed to attract much interest. The Judge was Mr. O. E. Cresswell. We subjoin the prize list.

POULTRY.—BRAHMAS.—*Dark.*—Cup and 1, J. Cass. 2, K. Mac'Lean. *Light.*—1, J. Grieve. 2 and *vhc*, K. Mac'Lean. COCHINS.—*Buff or Cinnamon.*—1, Master W. Peacock. 2, T. Clarkson. *vhc*, K. Mac'Lean. *Any other variety.*—1, Mrs. Todd. 2, K. Mac'Lean. DORKINGS.—1, G. Pounder. 2, W. Dale. *vhc*, J. Newall. GAME.—*Black Red.*—1, W. Ward. 2, W. English. *Brown Red.*—1 and *vhc*, J. H. Petler. 2, W. Bearpark. *Any other variety.*—1, T. S. Wardell. 2, J. Newall. *vhc*, W. Bearpark. HAMBURGHS.—*Gold-pencilled.*—1, J. Webster. 2, J. H. Newall. *Silver-pencilled.*—1, G. Waite. 2, W. Hepples. *Gold-spangled.*—1, W. Hepples. 2, W. Bearpark. *vhc*, E. Garwood. *Silver-spangled.*—1, G. Grainger. 2, W. Hepples. *Black.*—1, J. Whitehead. 2, W. Cockerell. *vhc*, J. Fountain. HOUDANS.—1, R. Mennel. 2, W. Leason. SILKIES.—2, Miss Fewster. SPANISH.—1, R. Dowsland. 2, W. Bearpark. ANY VARIETY.—1, T. P. Carver. 2, T. Watson. BANTAMS.—*Game.*—1, G. Pounder. 2, J. Wilson. *vhc*, Miss Ricatson. *Any other variety.*—1, C. J. Russell. 2, J. Allanson. FARMYARD CROSS.—1, W. Bearpark. *vhc*, G. Pounder, T. Scoby, G. Carbutt. SELLING CLASS.—2, J. H. Newall, Miss Lord. *vhc*, J. Shilbeck, G. Holmes. DUCKS.—*Aylesbury.*—1, T. Scoby. 2, W. Peacock. *Rouen.*—1, J. Storry. 2, W. Hepples. *vhc*, W. Trowsdale, W. Bearpark. *Any other variety.*—1, T. P. Carver. 2, Lady P. Galiway.

PIGEONS.—CARRIERS.—1, J. H. & A. Petler. 2, E. Garwood. POUTERS.—1 and Special, H. Hewetson. 2, H. Naylor. *vhc*, C. J. Russell. TUMBLERS.—*Short-faced.*—1, W. T. Wood. 2, Miss M. Stephenson. *Long-faced.*—1, H. Spink. 2, W. Cuthbert. FANTAILS.—1 and 2, Miss M. Stephenson. BARBS.—1, J. H. and A. Petler. JACOBINS.—1 and 2, J. Blanshard. *vhc*, W. Dale. MAGPIES.—1, W. Dale. 2, T. Watson. DRAGOONS.—*Blue or Silver.*—1, O. Lawson. 2, A. H. Duck. *vhc*, W. Dale. *Any other variety.*—1, G. Destner. 2, W. J. Wood. *vhc*, H. Spink. TURBITS.—1, E. Garwood. 2, D. Maynard. ANTWERPS.—*Short-faced.*—1, W. Dale. 2, W. Hastie. *vhc*, — Auton. *Long-faced.*—1, J. Trousdale. 2, W. Hastie. ANY VARIETY.—1, G. T. Morriss. 2, W. Graham. SELLING CLASS.—1, G. Destner. 2, W. Graham.

VARIETIES.

SOME years ago the question of the origin of the Brahma was hotly debated. One side argued that it was a breed which for many generations had been bred in its present form, and that the race was as pure as the Dorking or Cochin, or any other well-known breed. The other maintained that it had been produced within the last thirty years by crossing the Grey

Shanghai, or unimproved Cochin, with the Malay, or some similar stock. The former party much relied on the distinctive peculiarity of the pea comb, which they contended had never been seen in any other breed. We have within the last few days seen at Scarborough Show a singularly fine Partridge Cochin hen, beautifully marked, and with a perfect Brahma comb. What her origin is we cannot conjecture, though there was no other Brahma-like peculiarity in her looks, but we shall endeavour to ascertain, and report upon it.

—— We have received a printed correspondence on the subject of Mr. T. P. Lyon's disqualification at the late Shrewsbury Show. The facts seem to be these :—The Judge, Mr. Entwisle, disqualified Mr. Lyon's Duckwing Game cock, a bird which we believe won at the Dairy Show, for being trimmed on the saddle, and the Committee after consultation with the other Judges upheld the disqualification. Mr. Lyon indignantly denies all knowledge of the trimming, and we are sure that all who know that gentleman will give him ready credit; but unfortunately a servant has the care of his birds who may possibly have committed the offence, though he also denies having done so. The Shrewsbury Show was held under the Poultry Club rules, and Mr. Lyon is a member of the Club, so of course the whole question will require careful investigation by the Committee.

—— We have received the following relative to the tameness of Waterfowl in Hyde Park :—During the cold weather I went to feed the Ducks on the Serpentine, when a fine Swan (as tame as Lohengrins) came out of the water and walked up to me, and fed from my hand, not in the least dismayed by the appearance and manner of a "Wyld Savage."

—— We are continually hearing of difficulties arising from the acceptance of late entries at shows. The facts of a case have just been laid before us, in which a most valuable bird has been lost to its owner at a Scotch show from the entries having been invited by the Secretary and sent by telegraph. Price was omitted in the telegram, the exhibitor not wishing to sell. The Secretary, most unwarrantably as it seems to us, took upon himself to price the birds, putting prohibitory prices on all of them but one; but on that only a selling class price. Of course the bird was claimed, and it remains to be seen what redress the exhibitor will have. The whole question of late entries is a difficult one, and we hope in an early number to enter more fully into it.

—— Honey, says the *British Mercantile Gazette*, may be bought for 8½*d.* per lb. in California. An American firm has recently imported, as a commencement of a new trade, 200,000 lbs. of honey to this country, where it finds a ready market. In the United States the annual sale of honey is 35,000,000 lbs. One firm owns 12,000 hives.

—— The same Journal contains the following note on the consumption of wheat in Great Britain. In a population of 34,000,000, consuming 5½ bushels of wheat per head in the year, or 23,500,000 quarters, we only produce nett 10,500,000 quarters. This leaves 12½ bushels to be bought from foreigners for the year 1878–79. Thus while we pay £25,000,000 sterling to the foreigner at 40*s.* a quarter, we only realise for ourselves £21,000,000 sterling, out of which the cost of production, rent, and wages have to be deducted. Thus there is little to encourage the increased growth of wheat at home, inasmuch as our foreign sources every year increase, and the foreign production becomes cheaper.

THE NATURAL AND THE ARTIFICIAL.

Since my communication upon the value, to me and all bee-keepers, of artificial comb foundation, which appeared in the Journal for September 5th, I have been pleased to see very strong expressions of opinion in favour of their use emanating from your esteemed correspondents "B. & W." and Mr. Pettigrew. I am convinced that before long we will see the latter not only using them in supers but in the body of his hives to hasten brood-rearing at that moment when it is all-important to have young bees hatching out in crowds to gather the delicious nectar during the short period in which the flowers secrete the greatest quantity.

I gave it as my opinion that unless excessively thin foundation be used it is better not to tack the word "artificial" on to super honey, and so leave it open to the charge of being adulterated. Now I am glad to be able to inform your readers that the time has come when they may easily obtain the foundation of such thinness of base that I would almost defy anyone to know that super honey built by its help had foundation to aid the bees. I have been favoured with samples of foundation by Mr. Raitt of Blairgowrie, specially made by him for use in supers, and certainly I am amazed at the delicate beauty of the article he is now offering me. I most certainly can use this article without danger —in fact, it is to my eyes an actually thinner base than the bees build. I formed my former judgment by the results of the use of American-made foundation, and 105 lbs. that I had from Mr. Raitt last year.

The Scotch-made foundation pleased me much more than the American. I found it was worked out by my bees in a shorter space of time, besides the cell walls were much more sharply defined. Certainly Mr. Raitt has vastly improved, and I am now writing him for some of this superfine foundation. At the prices he is offering it at no one who wants a harvest of super honey quickly this year ought to be without it, and I may add that having received quotations for the machines from three sources in America, I feel convinced no private apiarian can make his own to any advantage against the prices it is offered at. In using wax for foundation all parties seem agreed to use the natural yellow wax, and never the bleached wax. Although the foundation may be a golden colour, the perfect comb as finished by the bees appeared as white as any of the natural comb. It would appear as if the bleaching, either by exposure to the sun or by chemical means, alters the wax, but certainly the bees do not work it with the same alacrity as the common yellow wax.

By the American "Bee Journal" for September, which gives a translation of a letter from Dr. Reisser of Alsace, and which appeared first in "L'Apiculteur Alsacien-Lorrain," I find that this zealous defender of the use of comb foundation was using analogous reasoning to that I pursued in my letter to demonstrate the value of foundation. He wrote : "Let us consider the value of what we already possess—that is to say, of sheets simply figured. It is now admitted that every pound of comb made by the bees costs their proprietor a minimum of 10 lbs. of honey. Let us put the wax at the highest price, say 2*s.* 2½*d.*, and the honey at the lowest, say 9½*d.*, then the actual loss to the apiculturist is 5*s.* 9½*d.*" Thus the proofs are accumulating of its immense value in the rational treatment of the honey bee.

From what I have heard of sheets breaking away, &c., I am led to the belief that adulterated wax was used; and when we say "genuine American foundation" we may feel convinced it did come from America; but what guarantee have we that (bearing in mind the wooden nutmegs) it is pure beeswax? Wax is easily adulterated, hence my advice to buy at home of reliable makers who have a name and reputation to lose.

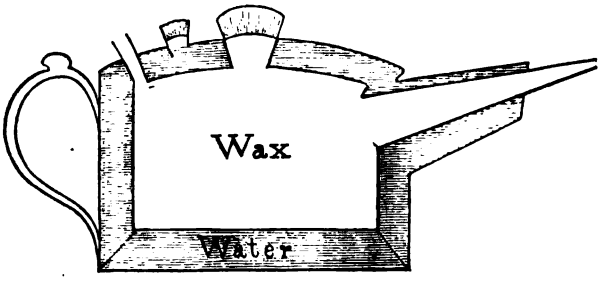


Fig. 13.

"Although I put swarms into hives with nought but foundation Mr. Raitt's article did not break down; and when a sheet has fallen I have always found it come clean away from the groove in the top bar of the frame into which they are cemented by boiling wax, and I noticed that if the cementing wax was used too cold it did not bite into the wood and grip it and the foundation properly. Many will use foundation this year for the first time; and to them I say, Have a good deep groove on under side of the top bar of your frames (easily made by the circular saw); turn the frame upside down, and in the groove place the sheet of foundation; then balancing the frame and wax between the thumb and fingers of the left hand, the end of the frame towards the body being elevated, with the right hand pour from a wax smelter a few drops of very hot melted wax. These will seek the lowest level; and as they do so they congeal, fixing firmly in its place. Now turn the frame in the hand, and do the same for the other side; and if the wax is hot the grip is so perfect that it is astonishing the amount of knocking about a frame so filled may have before the foundation will fall out. The wax smelter I use (fig. 13), I obtained from Steele of Foulis, near Dundee. They well repay their cost.

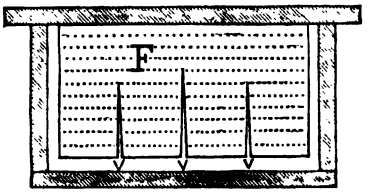


Fig. 14.

Some sheets will sag or bend and curl in a most provoking manner not only after being put in the hive but before, and a remedy for that is to cut out a narrow V-shaped piece upwards (see fig. 14). The bees crowding on the foundation soften it, and the edges come together, reducing the sheet again to a level surface. For full frames the foundation should hang a quarter of

an inch clear from the side bars of the frame, and an inch from the bottom bar; this allows for stretching in all directions. As far as my experience goes I have had no foundation stretch so much as to in any way interfere with the size of cells. Every cell has been accepted by my queens, and within the last few days I have had some full frames worked out beautifully, and every cell over a certain area has its fresh-laid egg.

I purpose placing certain full frames in some strong stocks; and taking the time occupied to work out, have eggs laid therein, &c., the results may astonish some of your readers. My season being so much earlier than in England the information may be of use.—ARTHUR TODD, *Algeria.*

DO BEES EAT POLLEN?

SOMEBODY has said that when we see the arc of a circle we form an idea of its circumference, and that when we hear a few spoken sentences or read a few that have been written of a person we form an estimate of his intelligence. Long before the late Mr. Woodbury opened a private correspondence with me I had read some of his letters on bees in the *Journal of Horticulture*, which clearly showed that he was a diligent student of Nature's laws and an honest expounder of apiarian science. In all his correspondence with me, which continued till he died, he eagerly sought knowledge or tried to impart it. He was always hungry to learn all that facts and experience could teach.

Some time ago I was pleased to receive a letter from Mr. Raitt, another advanced student and teacher of apiculture. A correspondence with Mr. Raitt had no sooner commenced than questions of interest and importance were mooted and discussed, one of which I have placed at the head of this letter—viz., "Do bees eat pollen?" When this question cropped up to the surface two years ago I was disposed to take the negative side, having often found pollen in abundance in hives in which the bees had perished from want of food; also that swarms lived and were healthy for months together, even for a whole winter, without seeing or tasting pollen or farinaceous food of any kind. I have now some strong stocks of bees, created and fed by sugar syrup, which have not a particle of farina in their hives. Some have a little pollen in a few cells, which does not appear to become less. In feeding bees with honey polluted with pollen I have invariably found that the honey has been taken, filtered and clarified, and the pollen left in the troughs. Honey mixed with wheaten flour has been presented to bees; they took the honey and left the flour dry in the troughs or dishes. Boiled and broken potatoes soaked in syrup have been offered to bees; they sucked the syrup clean out of the potatoes. The bees in my garden seem healthy and well without farina. Mr. Raitt maintains that farinaceous food is eaten by bees and is good for them. If he is right his facts and reasoning cannot be too soon or too widely spread amongst all classes of bee-keepers.

"What (wrote Mr. Raitt) do you consider the best stimulative food for bees to induce breeding? I ask this because I have a plan by which I can almost certainly cause breeding at any season, and somehow I often find other minds at work on the same problems as occupy my attention." In my reply I said in substance that I did not think his theory could be supported by facts, and that adult and perfect bees were healthy without pollen or farinaceous food. Another letter came from Mr. Raitt which is both interesting and important. In this letter he says—"On the pollen idea we are at variance, and I shall now calmly tell you my views. I once believed as you do that bees eat and live on honey and sugar only; but when I examined their excrements, even when no brood was being raised, I found them largely consisting of the indigestible husks of pollen grains. When I am feeding with a mixture of peameal the excrements are quite yellow. Then I considered that honey is not a nitrogenous substance, and that consequently it alone could not support animal tissue; and though I had known bees live a long time on honey and sugar alone, I had no doubt other animals could subsist quite as long, say on potatoes or starch food. Then I noticed that the larvæ were fed on a sort of jelly, which seemed to be half-digested food from the stomachs of bees and not a mixture of raw pollen and honey. Queen larvæ ditto. Then an egg must contain nitrogen. An animal producing 3000 eggs a day must consume a large quantity of it; but the bees feed their queen from their own stomachs to save her poor stomach from the immense labour of digesting so much food. And thus I theorised till I came to try it.

"Three years ago a highland lad told me his grandmother used to give her bees a barley bannock (a cake of barleymeal) soaked in honey every spring, and that the bees eat it all but the skin; and this is the very idea I was waiting for. I had previously given meal in the open air, now I should try it in the hive. My bannock (cake) disappeared; and as soon as the bees began to eat it brood appeared. Now when I want breeding I make easily dissolved candy cakes with perhaps one-fifth of flour or peameal in them, and as certainly as I give them they disappear and brood appears. The bees cannot store away such pollen; they must utilise it somehow or other. They overfeed the queen and she lays; they go on brood-rearing in all weathers. These are facts that have afforded me great gratification, and I do most sincerely believe in the whole rationale of them."

All honour and thanks to Mr. Raitt for his researches and discoveries which have given him so much gratification. No other letter about bees has given me greater pleasure than the one from which I have been quoting. Every line of this letter is suggestive. If it is a fact that bees help their queens by feeding them with half-digested or chymified food, their natural history becomes more interesting. All through life it has been a mystery to me how and where the milky gelatinous-looking food given to young bees in their cells was prepared. Then there is the question of making bees stronger and producing brood at most seasons by feeding them with rich cakes of candy and peameal. Mr. Raitt's statements open up new fields for apiarian investigation, and if they are confirmed by future experience and research bee-keepers generally will be indebted greatly to Mr. Raitt. I present his views and reasoning—his facts and statements let us call them—to the readers of the Journal with considerable satisfaction, with the hope that many of them like myself will not be slow to prepare a nicely baked bannock and soak it well with honey for early experiment with our bees. In another letter Mr. Raitt tells me of a friend of his who feeds his bees with syrup made of milk and that they thrive excellently on it. He also mentions that he (Mr. Raitt) examined some of his hives during the break in the present storm of frost and found them strong. "I have," he says, "an idea that the small quantity of flour I put in the cakes of candy I gave them two months ago has given the bees greater stamina than they would have derived from mere sugar."—A. PETTIGREW.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. Jan. Feb.	9 A.M. Barometer at 32° and Sea Level.	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	In the Day. Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 29	30.261	32.2	31.1	S.E.	33.1	34.5	30.0	38.0	30.2	—
Th. 30	30.299	32.3	31.5	E.	33.1	33.3	31.9	35.0	31.8	0.020
Fri. 31	30.310	30.7	29.8	—	33.1	33.1	29.9	37.0	30.2	—
Sat. 1	30.129	28.7	26.8	S.E.	33.0	31.8	28.3	36.8	28.4	0.090
Sun. 2	29.785	34.2	34.0	S.E.	33.1	38.4	28.8	38.5	28.6	0.050
Mo. 3	29.593	36.3	36.3	N.	33.8	38.5	34.1	44.4	32.3	0.230
Tu. 4	29.931	34.0	32.3	N.E.	33.8	37.3	31.9	45.7	31.6	—
Means	30.044	32.6	31.7		33.3	35.3	30.7	39.3	30.4	0.390

REMARKS.

29th.—Cloudy, raw, damp day.

30th.—Thick dark morning; sleet began to fall at 11 A.M. and continued slightly until 4 P.M., when the air became much clearer.

31st.—Fine dry day throughout, but no sunshine.

Feb. 1st.—Rather thick in early morning, afterwards fine, with occasional gleams of sunshine between 11 A.M. and 1 P.M.; overcast in afternoon; at 6 50 P.M. driving shower of frozen rain, perfectly crystalline, lasting about half an hour; showers of the same during the evening.

2nd.—Very dull and thick all day, and thaw, with rain.

3rd.—Very dull and gloomy with drizzling rain all day, and snow in evening and wind.

4th.—Generally fair throughout the day, little overcast at times.

The temperature continues low. The average for January has been the lowest for upwards of twenty-one years.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 5.

OUR market remains the same, there is no alteration worth quoting.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	2	0	to	6	0	Melons	each	0	0	to	0	0
Apricots	dozen	0	0		0	0	Nectarines	dozen	0	0		0	0
Chestnuts	bushel	12	0		16	0	Oranges	℔ 100	4	0		10	0
Figs	dozen	0	0		0	0	Peaches	dozen	0	0		0	0
Filberts	℔ lb.	0	9		1	0	Pears, kitchen	dozen	4	0		6	0
Cobs	℔ lb.	0	9		1	0	dessert	dozen	3	0		8	0
Grapes, hothouse	℔ lb.	2	6		8	0	Pine Apples	℔ lb.	1	0		3	0
Lemons	℔ 100	4	0		8	0	Walnuts	bushel	0	0		0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	2	0	to	4	0	Mushrooms	pottle	1	6	to	2	6
Asparagus	bundle	0	0		0	0	Mustard & Cress	punnet	0	2		0	0
Beans, Kidney	℔ 100	1	0		1	6	Onions	bushel	2	6		4	0
Beet, Red	dozen	1	0		2	0	pickling	quart	0	4		0	0
Broccoli	bundle	0	9		1	6	Parsley	doz. bunches	2	0		0	0
Brussels Sprouts	½ sieve	2	0		4	0	Parsnips	dozen	0	0		0	0
Cabbage	dozen	1	0		2	0	Peas	quart	0	0		0	0
Carrots	bunch	0	4		0	8	Potatoes	bushel	3	6		4	0
Capsicums	℔ 100	1	6		2	0	Kidney	bushel	4	0		5	0
Cauliflowers	dozen	3	0		6	0	Radishes	doz. bunches	0	0		0	0
Celery	bundle	1	6		2	0	Rhubarb	bundle	0	0		0	6
Coleworts	doz. bunches	2	0		4	0	Salsafy	bundle	0	9		1	0
Cucumbers	each	0	9		1	0	Scorzonera	bundle	1	0		0	0
Endive	dozen	1	0		2	0	Seakale	basket	2	6		3	6
Fennel	bunch	0	3		0	0	Shallots	℔ lb	0	3		0	0
Garlic	℔ lb.	0	6		0	0	Spinach	bushel	2	6		4	0
Herbs	bunch	0	2		0	0	Turnips	bunch	0	2		0	0
Leeks	bunch	0	2		0	4	Veg. Marrows	each	0	0		0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 13—19, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age. Days.	Clock before Sun. m. s.	Day of Year.
13	TH	Royal Society at 8.30 P.M. Sale of Orchids at Stevens'	44.3	29.6	36.9	7 20	5 8	1 10	9 21	☾	14 27	44
14	F	Queckett Microscopical Club at 8 P.M. [rooms.	45.6	30.9	39.3	7 19	5 10	2 33	9 56	22	14 25	45
15	S		47.0	31.3	39.2	7 17	5 12	3 47	10 45	23	14 22	46
16	SUN	SEXAGESIMA,	47.0	30.6	38.8	7 15	5 14	4 47	11 47	24	14 19	47
17	M	Sale of Nursery Stock at Walton, near Liverpool.	46.6	30.6	38.6	7 13	5 16	5 31	1 a. 1	25	14 15	48
18	TU		45.2	31.1	38.2	7 11	5 18	6 2	2 18	26	14 10	49
19	W	Society of Arts at 8 P.M.	44.9	31.0	37.9	7 9	5 19	6 25	3 36	27	14 4	50

From observations taken near London during forty-three years, the average day temperature of the week is 45.8°; and its night temperature 32.1°.

NOOKS AND CORNERS.

WHEN the nooks and corners of a garden are turned to account in the many useful ways for which they are so admirably adapted they form a feature of considerable importance. Instead of barrenness or something worse, cultivated nooks render a garden even more enjoyable than the mere ordinary features of lawns, flower beds, and specimen shrubs do, not simply because when well treated such nooks add to the finish and completeness of a garden, but rather as affording a series of pleasant surprises in the healthy growth of delicate plants. Without some such shelter as nooks and corners afford there are plants that cannot be taken into the open air at all, and there are others which, if placed in ordinary borders of hardy flowers, are often glanced over with indifference; but when afforded a special nook, and permitted to spread into a large mass, rambling in a half-wild state, assume an aspect so remarkable—often imposing, that we are constrained to admire, and not unfrequently to wonder, at points of excellence hitherto overlooked.

In every garden there are some nooks lying waste unnoticed and uncared for. How disappointing it is to find that the path which winds so temptingly away among shrub groups ends in a rubbish heap, or that another has only taken us over undulating ground to a hollow with a stagnant pool, or under the shade of trees to a sickly undergrowth of shrubs that flourish only in open sunny positions, or to a dead wall which is thought so much in the background as to be unworthy of any clothing of climbing plants! It is precisely such parts of a garden that may be so treated as to become features of especial merit without any very great outlay, for they require but little labour to render them ornamental, provided the requisite knowledge and skill is brought to bear upon the work. Let not this phrase alarm my amateur friends, for the knowledge to which I allude is that which all may gain by quiet observation and real study of the requirements of the plants we may essay to cultivate.

Now, suppose such an observer has in his garden a damp swampy spot where nothing of an ordinary kind will grow, will he hasten to drain it so as to lay it dry and thus cause it to resemble the rest of the garden? I trow not, for he will probably be aware that he can render it a special attraction by simply planting a few clumps of Loosestrife in it, or, better still, a patch or two of Onoclea sensibilis, which soon spreads into a bold mass in a moist soil. Or if he has a large spreading tree under which grass will not grow well, instead of spending his strength in trying to induce it to do so, he hastens to enrich the surface with good soil wherein he plants a collection of Cyclamens, and thus gains another distinct and very charming feature. A pool of water is turned to account by him for aquatics—not a crowd of Water Lilies, but a few choice plants, such as a Calla or two, an Aponogeton, a Villarsia, a Pontederia, with just one white Nymphæa, and a fringe of Bog Bean, Water Violet, and Moneywort. If the pool is in a hollow and a path leads to it between high banks, he will not waste them by planting dense masses of Laurel, as we sometimes see, but will seize the lucky chance to form a collection of hardy Heaths, massing the low-growing spreading sorts, and using the tall sorts, such as Erica mediterranea, codonodes, lanceolata, and Alportii, to impart relief and height, and form a background at the top of the banks. A rocky nook would in the same way become a special attraction by planting alpine plants.

Such nooks and corners may be termed the result of an accident; others still more numerous may be made with the special object of affording stations for choice plants and imparting variety to any part of a garden that is thought monotonous or tame. A little border by a favourite window, or nook by a seat, is a special attraction on summer evenings if planted with the Night-scented Stock (Mathiola bicornis) that exhales so delicious a perfume as twilight comes. A dozen choice Lilies, planted singly in specially prepared stations in open semicircular spaces at intervals along the front of a shrubbery border, afford much more pleasure than a hundred planted at random among beds of shrubs, where they often have to struggle for existence. A single specimen of Pampas Grass that has its special nook with harmonious surroundings and ample space to show its full beauty is, like the Lilies, far more effective than a crowd of half-starved plants; and this holds good with most other plants of large growth. A few really well grown are always preferable to many planted and left to take their chance. I have seen a solitary Rose bush well placed and cared for much and justly admired, and I have seen an entire Rose garden with equal justice passed over after an uninterested glance.

However small our gardens may be, then, let us turn every part of them to account, and we shall find them becoming daily more attractive, growing in beauty, and with those numerous distinct features that tend so materially to render a garden really enjoyable.—EDWD. LUCKHURST.

YOUNG GARDENERS AND THEIR DIFFICULTIES.

WE have received the following suggestive letter, to which we direct the attention of experienced gardeners—those who have experienced the same perplexities as the writer and have surmounted them, and who thus can sympathise with and will give ready aid and encouragement to their younger brethren: we also equally commend the letter to the notice of all young men engaged in the vocation of gardening and who hope to fill positions of trust with confidence and competency. Without competency there can be no real confidence, and without confidence there cannot be that prompt, firm, decisive action which is essential to success. In making that statement we are painfully conscious of the existence of much false confidence—the obtrusive expression of undue self-importance—which is supposed to pass as real ability. But those so constituted instead of deceiving others only deceive themselves, and it is only by accident that they reap the rewards of their calling, for their natural course is downwards. For young men with great assertions but possessing little

sound knowledge, there is no hope; but for those who are conscious of their failings, and deplore them, there is much encouragement. Our correspondent "YORK" is of this class, and his letter in every way does him credit; it is as follows:—

"I am a young gardener, and I have obtained a situation as head gardener—a pretty comfortable one, so much so that I am desirous of keeping it. I have had much experience both as journeyman and as foreman, but when I have had much practice in house and flower garden work I have neglected just what I require the most, which is the arrangement of vegetables for the kitchen garden. I have several houses under my charge, and a large kitchen garden; but I have a large family to provide for, and I have no room to spare. This is my first year; and although I do not fear about getting on, yet I feel so bewildered sometimes that my perplexities oppress me so much that every duty seems to be jumbled up together through excitement, and although I strive hard against it I cannot move it; and I am sure that if such a state of mind continues long I must resign the place. I am anxious to succeed, and I have had long experience in some good and large places, which my testimonials testify; but then there are my own feelings, and if I could only see my way clearly and perform my duties steadily I am sure I should get on. Will you please give me some advice? You will no doubt have met with people like me before, and will know our minds better than we know them ourselves. Please give me some advice in your Journal, and tell me if you think I shall get better of my perplexities by-and-by.—YORK."

Of a man who can thus write there is much hope. He will certainly "get better," and would greatly err by resigning his charge, and incurring most probably perplexities of another kind. He must press on as steadily as possible, and his troubles will vanish. He has advantages that he might fail to have in another charge. A large kitchen garden implies experienced kitchen garden labourers. Let him not be above gaining instruction from them. By the exercise of tact he can learn from them without losing influence over them. The friendship of one successful neighbouring gardener would be of much value; but only one in this case, for a multitude of advisers would bewilder. Let him read also the writings of a few practical men, and turn such of their teachings to account that apply to his own case, not otherwise. It is by attempting too much that many young men fail. With such aids as those indicated and one year of practice, carefully noting failures and their causes, we have much confidence that "YORK" will succeed; but we shall be glad to hear what others say on the difficulties and shortcomings of young gardeners, for this case is only typical of hundreds of others, and the subject is one of considerable importance.

SALVIA HEERII.

WHERE conservatories have to be kept attractive through the autumn, winter, and spring months there is no colour so telling as scarlet. When associated tastefully with other flowers of different shades of colour scarlet imparts a brightness that is always acceptable in winter; a supply of scarlet is therefore necessary, and can be provided through the various seasons if sufficient forethought is exercised in the right direction; hence the object of my notes on the above Salvia, which is not so largely cultivated as it deserves to be. Salvia splendens seems in many gardens to take the lead, and is more largely grown than any other species or variety. I have no desire to condemn S. splendens, but I recommend S. Heerii to be grown more largely, as it will bloom for months after the other has faded. The flowers of S. splendens are acceptable in the autumn for variety, but to a large extent can then be dispensed with, as Zonal Pelargoniums can be had in bloom in abundance at the same time, and the flowers of Vesuvius are more useful for all purposes than those of the Salvia. Poinsettias can also be grown in quantity, and will give scarlet from November until February; and when these, Pelargoniums, Euphorbias, &c., are on the wane Salvia Heerii comes in and continues until Vesuvius commences flowering again.

If large plants of this Salvia are required, say, 5 or 6 feet through, the cuttings should be inserted at once, but for all ordinary purposes of decoration such large plants are not required. The system we adopt is as follows: The cuttings are rooted by the end of June singly in small pots, and after being hardened off for a short time the young plants are planted out. We open a small trench, and place in the bottom 4 inches of well decomposed manure and leaf soil, and plant on the top 2 feet apart. The plants grow rapidly while there, and only require watering about once a week through the summer, and stopping two or three times. In September they are potted in 6-inch pots; they are then placed behind a north wall, if the weather will allow, for ten days or a fortnight, they are well syringed overhead, and thoroughly soaked with water at the roots. Under this treatment the plants do not suffer through lifting, nor even lose a leaf. At the first appearance of frost they are taken indoors and kept cool in a light airy situation. When a portion of the stock is required to come into bloom we remove them to an early vinery or Peach house; the others are brought on into flower as we require them. This Salvia if well grown will bloom for nearly 2 feet down the stem, and can be had with four to eight of such flowering shoots in the sized pot named.

Another system can be adopted if dwarf plants are required. As soon as the blooms are formed in each shoot the tops can be taken off, and about six cuttings placed in 5-inch pots and rooted. Care must be taken not to draw them up weakly. —WILLIAM BARDNEY.

PEARS: WHAT SORTS SHOULD BE GROWN—THE COMING ELECTION.

AGREEING as I do with "R. M. A., *Cheshire*," (happy addition of locality to initials), on page 12, that considerable muddle exists in the minds of the public as to the best Pears in cultivation, especially in their adaptation to small collections, I for one hail with satisfaction the proposition of my friend Mr. Peach, that an election of Pears should be taken by representative pomologists somewhat on the lines of the last Rose election so ably tabulated by Mr. Hinton. I feel certain that if "WILTSHIRE RECTOR" could only be persuaded, as the original proposer, to carry out his own idea by undertaking the *rôle* of returning officer, he would find no lack of hearty coadjutors to send him lists from their respective counties, and the work would soon be thoroughly well done.

Pears are grown now-a-days so extensively as standards, pyramids, or wall trees in well nigh every kitchen garden, and thrive so vigorously (with some exceptions, apt in cold wet situations to canker) in every description of soil, that by following the plain directions published from time to time in our Journal as to the treatment of the best Pears tabulated in the election lists (I am assuming a fact only wanting time for accomplishment), supplemented of course by personal observation and practical experience as to the habit of growth of different varieties, such laments as that of "R. M. A." would soon be quite a thing of the past. It is quite incomprehensible to me how that writer in his collection of twenty Pears could "damn with faint praise" those standard favourites Jargonelle, Williams' Bon Chrêtien, Marie Louise, and Comte de Lamy, and "would quite as soon be without" Beurré d'Aremberg, Beurré d'Amanlis, Beurré Diel, Joséphine de Malines, and last though least the delicious Seckle.

I venture to subjoin a list of twenty-four Pears I consider most distinct and useful in our west midland district, but before I do so I should like to say a few words on the additions and omissions in Mr. Peach's admirable list. In so small a list as twenty-four, when so many valuable varieties must be crowded out, should not Souvenir du Congrès give way to Williams' Bon Chrêtien, which in some respects it strongly resembles, not the least in its quickly ripening and decaying? Structurally, of course, in many respects it differs. The same remarks hold good of Beurré d'Aremberg, which I should exclude in favour of Glou Morçeau, an extremely hardy high-flavoured variety whether grown on a standard or wall. Gansel's Bergamot when well or badly grown are two different fruits. I am agreeably surprised to hear this coy variety grows so well in the north. We west midland folk, unless we grow it on a wall with the best of aspects, have for our pains only a poor gritty Pear not worth eating—so much so, indeed, that by a popular error there are said to be two Gansel's Bergamots, which in the sense I have mentioned there certainly are. Van Mons Léon Leclerc we can only expect to fruit decently, if at all, on a good wall: thus, although a grand Pear, I should not expect to see this variety in a small list.

As regards omissions, I should rather have expected to see in a northern list Knight's two grand hardy Pears the Monarch and Althorp Crasanne, both figured in the "Herefordshire Pomona," especially the former, which, either grown on a standard when protected from the wind or on a north wall, is a great bearer and of first-rate excellence. Joséphine de Malines surely deserves a place for fine fruit distinct and elegant in colour and shape. This variety would doubtless be more popular than it is if, owing to a habit of fruiting at the end of its

branches, its reputation did not suffer from injudicious pruning. I am especially surprised at not seeing that indispensable late Pear Bergamotte Esperen in Mr. Peach's list. Surely he must know this invaluable Pear, and as surely he cannot have been disappointed with it. I do not believe any collection of six Pears could be perfect without Bergamotte Esperen; I would as soon think of omitting Doyenné du Comice. Of this I am quite sure, that no host could feel at all sure of giving his guests a dish of dessert Pears in perfect condition at Easter if this variety failed him.

I should be inclined to confine the election to dessert Pears, and would suggest placing the initial letters of dwarf, espalier, or wall after each variety in two lists, each in order of ripening, of twelve and thirty-six—if not too much trouble to the returning officer—as being of the greatest practical utility to the small kitchen-garden grower, as well as giving the more ambitious orchardist the *crême de la crême* of the best Pears at present in cultivation.—THE HEREFORDSHIRE INCUMBENT.

I OBSERVE at page 77 that your correspondent Mr. C. P. Peach makes reference to my condemnation of the Seckle Pear. Let me remind him that I only stated my own experience more or less for the last five years. Mr. Peach's experience may be very different from mine in another part of the country; hence the necessity for comparing notes. I may mention how much I was once deceived with Beurré d'Amanlis with fine-looking fruit grown on an espalier in a good situation. They were carefully gathered under the expectation that they would come in well for dessert. They ripened in due time, had a fine colour and appearance. I tasted one, but did not dare send in a similar sample for dessert; yet this Pear is often well spoken of and recommended highly in many lists.—R. M. A., *Cheshire*.

UNQUESTIONABLY an election of Pears would be of great value, even of more real usefulness than elections of Roses and Apples. The long lists of Pears, with the various characteristics and points of excellence of the varieties, that are consulted by planters of this most important of all hardy dessert fruits, cannot but perplex young gardeners and amateurs who contemplate forming a collection for the purpose of affording an unbroken supply of the best fruits over the longest possible period. Pear elections have been proposed before, but have been prevented by the enthusiasm of those who have given them their countenance and support. No sooner has an election been mooted than the matter has been taken up, and nearly every writer has sent in a list incorporated with his remarks on the subject. As a practical gardener I cannot help asking if the publication of these advanced lists is not premature. Do not the lists so sent in defeat the purpose in view? I observe that "WILTSHIRE RECTOR" did not submit a list of varieties, and in that I think he was right. It appears to me that preliminary remarks should be confined to a discussion of the manner in which the election should be conducted, and to the conditions by which it should be governed.

I agree with Mr. Peach that at least a large number of cultivators should be invited to send lists; but at the same time I would not exclude others from joining in the election. There are many, both amateurs and gardeners, who have special facilities for forming an estimate of Pears who could not, for various and some very obvious reasons, be directly requested to contribute. At the most not more than two or three growers in each county could be appealed to, and even these may not be the best qualified to communicate returns from their respective districts; therefore I would not exclude any growers from sending in returns who feel themselves specially qualified for doing so.

Lists, I suggest, should be sent from the several counties, leaving the returning officer to group them into geographical districts as he deems necessary. The nature of the soil, subsoil, and position, whether exposed or sheltered, should be stated, and whether the trees are grown as bushes or pyramids or against walls. Initial letters placed against the varieties would convey the information: and it would be well also to distinguish any that are found to succeed as standards. It may be taken for granted that a variety succeeding as a pyramid will succeed also as an espalier. Rainfall might usefully be stated where known.

These and cognate matters are what I conceive to be proper for discussion; but sending in lists by driblets, and before even the election is decided upon, cannot, it appears to me, promote the real object in view, but on the contrary the tendency of such informal returns is to prevent an organised election taking place at all.—A NORTHERN GARDENER.

THE NATIONAL ROSE SOCIETY.

ACCORDING to "D., *Deal's*," own showing the class for forty-eight is cancelled, at least for the present. By that acknowledgment I cannot admit that either "MID-SURREY" or myself took up false premisses, and by so doing arrived at false conclusions. "D., *Deal*," is therefore not justified in such an observation, having himself verified our remarks respecting the abolition of the said class, though he held out no hope as to whether there would be the gain of the number thus lost to the other classes.

As to the class for thirty-six being sufficient to test an amateur's powers is quite beside the question. The fact remains that forty-eight can be shown, and if the class had been continued forty-eights would still be shown. "D., *Deal*," would seem to throw a slur on the forty-eights simply because he has never seen a forty-eight without one or two weak blooms. If your correspondent always expects to see thirty-sixes, or even twenty-fours, minus the one or two weak blooms I think he will be more often disappointed than gratified. "OXONIAN" is not quite such a freshman as "D., *Deal*," supposes, for after being an exhibitor for the last nine years it does not surprise him to hear that some leading exhibitors have been at times unable to cut half a dozen blooms to satisfy the grower out of eight hundred plants. Fortunately this does not occur to all on the same day, otherwise we should find more empty spaces than we now do on the exhibition table.

I am very pleased to find the Committee has increased the number of classes for the smaller growers, so as to encourage fresh aspirants for the honours of the Society; at the same time it strikes me their ambition will receive a check from the experiences of those leading exhibitors as recorded by "D., *Deal*."

"WYLD SAVAGE" quite misunderstood "MID-SURREY" with respect to Messrs. Baker and Jowitt. I take it he meant thus:—If the class for forty-eight was continued those two would be unable to compete in the open, because it would necessitate their doing their best to defeat each other for the cup, consequently plenty of aspirants would come forward in the absence of those two giants in the open forty-eight; and I am of the same opinion, for it would be the means of drawing out the resources and capacities of others who might have some hesitation in standing shoulder to shoulder in the premier class with such renowned exhibitors.—OXONIAN.

NOTES ON CAMELLIAS.

THE present winter has been a very trying one for the satisfactory flowering of the Camellia. Doubtless many will be able to report a dropping of the buds, and this will happen sometimes with the greatest care on the part of the cultivator. Several items have to be attended to about a garden, and with the late severe weather so much necessary firing would consequently cause a dry temperature, and if the plants were then dry at the roots the result probably would be a dropping of the buds. Where much firing is practised the atmosphere will be improved by sprinkling the paths and surfaces with water.

The Camellia in winter should not by any means be in a waterlogged state, as the buds will then drop also, and, of more importance than that, the young roots are apt to decay. Incidents may be worth noting in reference to bud-dropping. I will here note one that came under my observation a little over twelve months ago. After a very dense foggy time from three large plants of imbricata we lost many buds. Scarcely another variety was similarly affected by the extraordinary close or smoky atmosphere. This year from two large plants of a white variety we have lost many of the buds owing to the firing and close atmosphere about Christmas time; but upon the whole we have had a fine display of flowers, and before the season is over we hope to have as many more.

It is a very profitable plan to have a batch of Camellias to come in early. A few weeks ago to attain that end we placed upwards of a dozen plants in a little heat, so that there will be an early growth, and we shall expect them to give us flowers by September or early in October next. Some plants of fimbriata alba, from which we were cutting early in October last, still have a few flowers on them, and since that time they have hardly ever been without some flowers. Jubilee has

now some beautiful flowers—shapely and finely spotted; Reine des Fleurs, which is a fine red, has this season been mottled with white; Countess of Orkney has had some fine flowers also. I do not know whether it is usual with this kind, but with me it flowers intermittently over a very long period of the year. A plant that has had some flowers on it some time since has many buds on it now in various stages of development, and if they go on as they promise they will be in flower late in the year. A few years ago we had fine flowers of this variety until the end of May, when all the others had ceased flowering, and the same plant was in flower some months previously. This kind also comes in various ways: sometimes it will be nearly all white, sometimes nearly all red or rose colour, though the normal form may be said to be white beautifully streaked with red or blotched with delicate pink.—R. M. A.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 11TH.

THE annual general meeting of the Society was held in the Council-room on Tuesday last, the President (Lord Aberdare) in the chair. The members of the Council present were Lord Alfred S. Churchill, Sir Trevor Lawrence, Bart., M.P., Major R. Trevor Clarke, Major Mason, Mr. William Haughton, Dr. Denny, Henry Webb, Esq. (Treasurer), and Dr. Hogg (Secretary). There was an unusually large attendance of Fellows, the Council-room being nearly filled.

Mr. S. JENNINGS, the Assistant Secretary, read the minutes of the last general meeting, which, upon the proposition of the Chairman, were confirmed. The names of newly elected Fellows having been read, the President then briefly alluded to the objects of the meeting, and stated that the first business was the appointment of scrutineers—Mr. John Lee and Mr. West.

Mr. SHIRLEY HIBBERD stated that as the proposer of Mr. W. B. Kellock as a member of the Council he assumed he had the right of proposing a scrutineer either in the place of one of the two gentlemen named, or as an addition to them.

Mr. HAUGHTON submitted that they had no power to make an addition, and the appointment resting with the Chairman the business proceeded.

The PRESIDENT then proposed that the report of the Council be taken as read, which was agreed to; but on commencing to move its adoption he was reminded that it would be opportune to refer to the nomination of the gentlemen to the Council, two of whom he found were opposed. The Council's nomination to fill the vacancies caused by the retirement of Messrs. W. Haughton, C. J. Freake, and Philip W. S. Miles, were A. Grote, F.L.S., Lieut.-Col. W. Makins, M.P., and R. A. Aspinall. In the place of the two latter gentlemen the names of Lord Skelmersdale and Mr. Kellock had been submitted. In reference to the former the Chairman observed that Lord Skelmersdale was not a member of the Society at the time of their nomination; but immediately it was known that his lordship intended joining the Society and was willing to take part in its management, Mr. Aspinall in the most handsome manner withdrew in his favour [cheers]. In respect to Mr. Kellock that gentleman had had an experience of five years on the Council, and was a most valuable member of the Society—one who had always discharged his duties well; and having been absent from the Council for twelve months he was undoubtedly eligible for re-election; but while admitting Mr. Kellock's fitness the Council could not overlook the importance of having fresh blood, hence they had nominated a gentleman who it was hoped might bring them new ideas—a gentleman of broad views, great intelligence, and one who he was sure took real interest in the welfare of the Society. While, therefore, they had nominated Col. Makins it was not because they had any objection to Mr. Kellock; and if that gentleman was elected they would be quite ready to accept him, and proud to take him by the hand: therefore the question was entirely in the hands of the meeting. On the votes being collected the Chairman announced the following result, which was received with considerable applause:—

Mr. Grote	85	Lord Skelmersdale	59
Col. Makins	65	Mr. Kellock	38

The President, on proceeding to remark on the report, said his observations would be brief. He referred to the general confidence that existed, to the great excellence of the meetings, and to the magnificence of the shows of last year, and would have been glad if the meeting could have heard the warm marks of approval of the Princess of Wales, the Crown Princess of Germany, and other members of the Royal Family respecting the fine displays that they visited. The next question was the present position of the Society. In consequence of having failed to raise the sum of £10,000 as required by the time stipulated (25th December, 1878) their legal term of occupancy ceased. In reference to the future the Commissioners had not yet arrived at any decision as to the gardens, but a letter from General Scott stated that a meeting would shortly be held on the subject. He (the Chairman) believed the deliberations of the Commissioners need not disturb the Fellows. The Commissioners he was sure were willing to do all in their power for the Society, and it might be taken for granted that no arrangements will be arrived at to injure it as a scientific body. As to the space occupied by the gardens that was another matter, and it was possible that the Commissioners would feel themselves justified in employing at least a portion of that space in a more profitable manner; but at present nothing on that point was settled.

Lord ALFRED CHURCHILL seconded the adoption of the report, which was carried unanimously.

Mr. SHIRLEY HIBBERD rose and said: We appear to be in a very distressing way with regard to the debenture debt, and our position appears to be this—that we have no legal right to the ground on which we tread; we may enjoy it for a time, but the Commissioners may turn us out at any moment, and he thought it would be better to be turned out at once than to endure the present uncertainty. Under any circumstances if we occupy these grounds we ought to pay a rent. Hitherto these gardens have been a security for the debenture debt, but now the security ceases, and responsibility is being incurred by somebody, possibly by the Council. On such an occasion as this he thought we ought to know something more clear on this point than is stated in the report.

The PRESIDENT assured the meeting that the Council did not incur any responsibility in regard to that debt, the conditions of which were satisfactorily explained.

Dr. MASTERS expressed his regret that the report was not circulated several days prior to the meeting; he had only had time to glance hurriedly through it, but so far as he could see it was in many respects satisfactory; yet he was disappointed at not finding any allusion to the financial result of the Preston Show, and he requested information on that point.

The PRESIDENT briefly replied that the Society was not responsible for the finances referred to, and at the same time regretted that the weather and other circumstances militated so seriously against the success financially of that gathering.

A FELLOW then asked on whom the responsibility of the loss fell if not upon the Society; to which his lordship replied, that although that was no doubt an interesting matter, he was not quite in a position to answer the question.

A question was then asked respecting the closing of the north-west gate of the gardens, and it was explained that as a matter of economy the gate was kept closed in the winter when access was not wanted by it, and it would no doubt be opened again in the summer as usual.

After Col. MAKINS had thanked the meeting for electing him on the Council, Mr. HARRY VEITCH proposed a vote of thanks to the Chairman and the Council for their services, briefly alluding to the great increase of the Fellows of the Society and the distribution of plants, and the meeting terminated.

REPORT OF THE COUNCIL TO THE ANNUAL GENERAL MEETING OF 11TH FEBRUARY, 1879.

IN presenting to the Fellows their Report of the operations of the Society during the past year, the Council are gratified to record a continuance of the improved interest in its proceedings, as evinced by the success of the various shows and meetings, which, during the year now closed, have been remarkable for the spirit which has animated the Committees and the unvarying energy displayed by all classes of exhibitors.

At no period of the Society's history have the meetings been so well attended, or such important and interesting groups of plants and collections of fruit displayed; so that these ordinary meetings have in variety and beauty fallen little short of the greater flower shows.

The meetings of the Scientific, Fruit, and Floral Committees have been numerously attended; and the members have been most diligent in the discharge of their honorary duties. The usual high standard of excellence both as to fruit and plants has been maintained; a complete list of the certificates awarded will be published in the next number of the Society's Journal. The Council have much satisfaction in recognising the valuable work that has thus been accomplished.

In order to increase the general interest of the meeting of the Committees during the current year, and to give some direction to their work, it has been determined to award medals for special exhibitions of plants, &c., in the groups designated for each successive meeting.

Four parts of vol. v. of the Society's Journal have been published during the year, the first of which, issued in January, was under the editorship of the late Mr. Andrew Murray.

The contributed papers comprise Dr. M. C. Cooke's exhaustive treatises "On the Fungoid Diseases of the Vine;" a lecture delivered by the Assistant-Secretary on the "Cyclamen;" a paper by Dr. M. T. Masters, F.R.S., "On the Nomenclature of Garden Plants;" notes by Col. R. Trevor Clarke "On the Culture of the Fig as a Standard in the Open Air;" "On Fern Sports," by T. Moore, F.L.S.; "On the Native Country of the Potato," by

W. B. Hemsley, A.L.S.; and "On a Disease in the Ash," by W. W. Saunders, F.R.S.

The Reports of Chiswick trials include Violas, Clarkia, Iberis, Viscaria, Godetia, Tomatoes, Asters, Turnips, Filberts, and Savoys.

Records of the proceedings of all the meetings of the Society as well as of the Scientific, Fruit, and Floral Committees from the beginning of the year up to and including the meetings of the 23rd July, will also be found in the numbers of the Journal published. Matters of considerable interest resulting from the deliberations of the Scientific Committee are also fully reported.

The fruit catalogue which was published in the Society's Journal several years ago is now under revision and will be corrected up to date. It is intended to reprint this most valuable work in the form of an appendix to the Journal.

The annual exhibition of the Society, which was honoured with the presence of H.R.H. the Princess of Wales, of the Crown Prince and Princess of Germany, and other members of the Royal Family, is acknowledged to have been one of the most successful that has been held in this country since the great International Exhibition of 1866, and their Royal Highnesses were pleased to express their admiration of the magnificent display. The Council have every reason to anticipate that the arrangements they have made for the great Show to be held in May next will ensure an equally successful Exhibition. The Rose Show, with which was associated the annual Exhibition of the Pelargonium Society, was also a most extensive and beautiful display.

With a view to carry out one of the principal objects of the Society in popularising horticulture, the Council resolved to attempt an Exhibition for the benefit of the poorer classes of the metropolis. Whit-Monday was selected for the experiment, and the low charge of 2*d.* was fixed for admission. Thanks to several Fellows of the Society and a few of the City Companies, a liberal schedule was provided by private subscription; and several of the leading exhibitors at the Society's ordinary meetings generously contributed splendid groups of plants. The results were highly satisfactory; nearly 16,000 persons availed themselves of the privilege, and perfect order prevailed. H.R.H. the Princess Louise, Marchioness of Lorne, had graciously consented to distribute the prizes upon this occasion, but in consequence of a recent domestic bereavement was unable to be present; and that duty was kindly performed by the Lady Mayoress, who was accompanied by the Lord Mayor and the Sheriffs of London. It is intended to organise a similar show next Whit-Monday.

After an interval of five years arrangements were made for holding a provincial show at Preston under the auspices of the Society. The success of this magnificent Exhibition, which was held in July last, was from a horticultural point of view complete.

In the present depressed state of trade your Council have not felt themselves justified in accepting any of the invitations which they have hitherto received to organise a provincial show for the coming season.

The condition of the garden at Chiswick is satisfactory. The rockery formed at the commencement of 1877 has proved a most interesting attraction. The season having been favourable the plants have succeeded remarkably well. Considerable additions have been made to the collection of hardy herbaceous and alpine plants, which will be gradually propagated for distribution to Fellows.

The severe frost which has prevailed during the present winter has done to the outdoor plants at Chiswick serious damage, the full extent of which cannot be ascertained as yet. The lowest temperature registered at Chiswick has been 12°—*i.e.* 20° of frost.

The crop of Grapes in the great vinery has been good. The fruit has been sold to Fellows at reduced rates, a privilege which has been greatly appreciated. A wonderful crop of fruit has been produced on the cordon Peach trees on the wall—an experiment which has proved instructive as a means of comparing the different varieties.

Collections of the most approved varieties of Figs have been planted out as standards in the old orchard house, which has been entirely devoted to the trial of their adaptability for this mode of culture.

The Vines newly planted under the glass wall have done well.

Owing to the late spring frosts the outdoor fruit crop proved almost a failure.

All necessary repairs to the hothouses have been carried on as usual, the alterations effected last year in the heating apparatus have proved entirely satisfactory.

The following trials have been carried out by the Fruit and Vegetable Committees:—Cabbages, in continuation of the 1877 trials. Peas, 110 varieties. Lettuces, 115 varieties. Endives, 30 varieties. Beet, 60 varieties. Strawberries in pots, 150 varieties. Of these the trial of Peas, owing to the peculiar season, was not satisfactory, they will therefore be tried again. A second trial of Lettuces, Radishes, and Leeks will also be made.

Full reports by the Superintendent on Cabbages, Endives, and Beet will be published in early numbers of the Journal.

Trials by the Floral Committee have been carried out of—Gloxinias, 80 varieties; Abutilons, 88 varieties; Bouvardias, 19 varieties; Cannas, 150 varieties; Tuberous Begonias, 72 varieties. Several charming new varieties of these last have been raised in the garden, which when propagated will be distributed.

Trials have also been made of double Ivy-leaved Pelargoniums and double-flowered Zonal Pelargoniums in pots; and as bedding plants, of Verbenas, Tropæolums, and many varieties of annuals; conspicuous among which may be named the varieties of the Chinese Pink. On all these subjects full reports will be published in the Journal.

The thanks of the Society are due to the numerous donors of plants and seeds, a full list of which is appended; and especially to the Director of the Royal Gardens at Kew; to H. J. Elwes, Esq., and W. Wilson Saunders, Esq., Col. R. Trevor Clarke, Baron von Mueller of Melbourne, and Professor Sergeant of the Harvard University, Boston, U.S.A.

The Council have great pleasure in announcing the encouraging fact that during the past year the distribution of plants, cuttings, and seeds has been considerably in excess of that of any former year. Many valuable plants, &c., some of which are new to cultivation, have been distributed from Chiswick to almost every part of the United Kingdom.

The following is a summary of the distributions of 1878 as compared with those of 1877:—

	Distributed in 1878.	Distributed in 1877.
Plants	5250	1695
Cuttings of plants, fruits, &c.	2054 bundles	715 bundles
Strawberry runners	2500	
Packets of seed	22,500	15,850

In order to meet the wishes expressed by many of the Fellows of the Society it has been arranged to include seeds of useful vegetables not ordinarily found in trade catalogues in the distributions of the coming season. The Council again express their desire to open correspondence with foreign and colonial horticulturists with a view to the exchange of plants and seeds, and they trust that the Fellows of the Society will assist them in carrying out so desirable an arrangement. Letters on this subject should be addressed to the Assistant Secretary, South Kensington.

At South Kensington several improvements have been effected in the gardens. It has been necessary to supply new boilers both to the Palm house at Chiswick and to the conservatory at South Kensington.

The Fellows of the Society are aware that the last agreement entered into between H.M. Commissioners and themselves, with respect to the occupation of the South Kensington Gardens, terminated at Christmas last. Under this agreement H.M. Commissioners waived their right of re-entry until the close of the original term of occupancy—viz., June 1892, provided the Society could in the three years ending the 25th December, 1878, raise its annual income from subscriptions to £10,000. The efforts of the Council to fulfil this condition have failed, and the Commissioners have therefore the right to exercise their power of re-entry. No intimation has as yet been received from them that any substantial alteration in the occupation of the gardens is at present intended; and the Council venture to hope that arrangements may be made by which the connection of the Society with these gardens, in all those respects in which that connection has been beneficial to the best interests of the Society, may still be maintained. But whatever may be the ultimate decision of the Commissioners, the Council is convinced that no measure which they may resolve upon in the discharge of their trust as managers of the estate of which the gardens form part, will be adopted without the utmost consideration to the fair claims of the Society, and its position as a scientific association of established usefulness and eminence.

During the past year 197 free monthly tickets have been issued to students in the science and art schools, to enable them to pursue their studies from nature in the gardens and the conservatory. The same privilege has always been accorded to properly accredited artists.

The number of new Fellows elected in 1878 was 215, and of one-guinea members thirty-six. There have been ninety-seven resignations and sixty-nine deaths; amongst the last the Society has to mourn the loss of the lamented Princess Alice, Grand Duchess of Hesse.

The number of resignations appears to be somewhat larger than usual; the list, however, includes many Fellows who had neither paid their subscriptions for 1876 and 1877 nor resigned, and who have since paid their arrears and removed their names. Several of these have since rejoined the Society.

The Society's list of honorary Fellows has been strengthened by the election of His Majesty the King of the Belgians, K.G., who has most graciously accepted the honour, claiming to be not only a lover of horticulture but a practical horticulturist. Several distinguished foreign and colonial horticulturists have been elected corresponding members. The Council feel the desirability in the interests of horticulture of the closer co-operation of the various kindred associations throughout the country, and they will be glad to receive suggestions from local secretaries and others interested as to the best means of carrying out this object.

A legacy of £100 has been left to the Society by the will of the late Miss Parry of Ham, for many years a Fellow. This amount

has been invested in consols, and placed in trust under the same conditions as those regulating the Davis bequest.

BALANCE SHEET, 31ST DECEMBER, 1878.

DR.	£	s.	d.
To Sundry Creditors on open Account	179	5	0
„ Life Composition Account	2166	2	0
„ Additional Debenture (C. J. Freake)	5000	0	0
„ General Revenue Account—Balance carried forward	859	16	7
„ Legacy received from the late Miss Parry	90	0	0
	£8295	3	7

CR.	£	s.	d.	£	s.	d.
By Capital				7171	12	9
„ Annual Subscriptions—Outstanding				361	4	0
„ Sundry Debtors—Garden Produce				183	0	1
„ Investment—3 per cent. Consols—£100 (Legacy Invested)				95	2	6
„ Cash at Bankers—On Deposit Account and Interest	345	16	10			
On Current Account	138	2	11			
				483	19	9
„ Petty Cash in Hand				0	4	6
				£8295	3	7

We have examined the above Accounts with the Books and Vouchers, and find the same correct.

R. A. ASPINALL, JOHN LEE, JAS. F. WEST, } *Auditors.*

January 31st, 1879. SAML. JENNINGS, *Assistant Secretary.*

ANNUAL REVENUE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 1878.

EXPENDITURE.

	£	s.	d.	£	s.	d.
To Establishment Expenses—						
Salaries	577	17	0			
Wages	231	0	1			
Printing, Stationary, and Cards	168	18	2			
Postages	73	13	4			
Gas	17	12	0			
Library	4	3	5			
Miscellaneous	95	8	1			
				1,168	12	1
„ *Special Expenses in relation to Horticulture—*						
Journal	141	12	2			
Fruit and Floral Committees	86	16	4			
Editor of the Journal	100	0	0			
				328	8	6
„ *Chiswick Garden Expenses—*						
Rent, Rates, Taxes, and Insurance	254	2	8			
Labour	974	6	8			
Implements, Manure, Coals, and Coke	335	1	3			
Repairs	108	1	2			
Trees, Plants, Seeds, &c.	30	15	0			
Superintendent's Salary	150	0	0			
Water	14	16	0			
Miscellaneous	79	6	5			
				1,946	19	2
„ *Kensington Garden Expenses—*						
Rates, Taxes, and Insurance	416	13	1			
Superintendent's Salary	100	0	0			
Labour	421	0	6			
Repairs	112	2	3			
Coke and Manure	24	9	0			
Implements	1	0	6			
Water	40	7	5			
Reading Room	24	5	2			
Bands	162	13	9			
Miscellaneous	91	19	0			
				1,394	10	8
„ *Exhibitions—*						
Advertising	279	10	5			
Prizes and Medals	734	1	0			
Bands	129	12	0			
Superintendent of Flower Shows	25	0	0			
Judges' Fees	13	13	0			
Sundries	167	15	7			
				1,349	12	0
				6,187	12	5
„ *Balance to General Revenue Account*				660	15	8
				£6,848	8	1

INCOME.

	£	s.	d.
By One-fifteenth Life Compositions as at 1st January	676	18	0
„ Annual Subscriptions	4,665	12	0
„ Exhibitions	1,671	18	3
„ Promenades	69	5	0
„ Daily Admissions	375	13	1
„ Garden Produce	424	8	8
„ Packing Charges	29	1	7
„ Miscellaneous Receipts	60	15	10
„ "Davis Bequest."—Interest appropriated under provisions of Trust towards Prize Medals	89	16	4
„ Interest on Bank Deposit Account	10	19	4
	£6,848	8	1

SAMUEL JENNINGS, *Assistant Secretary.*

We have examined the above Revenue Account with the Books and Vouchers, and find the same correct.

R. A. ASPINALL, JOHN LEE, JAS. F. WEST, } *Auditors.*

January 31st, 1879.

GENERAL REVENUE ACCOUNT, 31ST DECEMBER, 1878.

DR.	£	s.	d.
To Annual Subscriptions—Arrears Account for Subscriptions in Arrear which have either lapsed, or in other ways become irrecoverable, or which have been carried off at time of payment to Credit of Current Subscriptions	663	17	6
„ Balance carried forward as per Balance Sheet	859	16	7
	£1523	14	1

CR.	£	s.	d.
By Balance of Revenue Account brought forward 1st January, 1878	522	18	5
„ Annual Revenue Account—Balance for the year 1878	660	15	8
„ Suspense Account—As per Balance Sheet, 31st December, 1877, transferred to Revenue, being cash received from H.M. Commissioners for overpaid taxes and interest thereon	340	0	0
	£1523	14	1

By Balance carried forward £859 16 7

We have examined the above Account with the Books and Vouchers, and find the same correct.

R. A. ASPINALL, JOHN LEE, JAS. F. WEST, } *Auditors.*

January 31st, 1879. SAMUEL JENNINGS, *Assistant Secretary.*

HARDY FRUIT VERSUS BIRDS.

I HOPED that now at least all persons had come to a right understanding of this subject, and that I should never again read any strong language about it; but "W. H. G." on page 40 speaks of "the insane practice of extermination" of birds, referring to "the losses suffered on the Continent, &c., by bird destruction." Let me again point out that the two cases are not the least parallel. Owing to several mild winters in succession birds had not been thinned as usual by cold and want of food. The present winter has been the reverse, and the death of many birds will tend to restore the lost balance; but up to the end of 1878 the case stood thus: Small birds, many very destructive if in too great numbers, had increased marvellously. Small boys given to bird-nesting had been in terror of the county police, and dared not take a nest. Then keepers have shot down all the hawk tribe, which naturally kept the small birds down: hence in the south of England the numbers of blackbirds, thrushes, bullfinches, tomtits, &c., have so increased, all natural checks being gone, that fruit-culture, save under nets and wire houses, has become impossible to follow with profit; the poor, who cannot afford wire or nets, suffering first. As a consequence of this fruit has to be gathered and sold, or offered for sale, unripe—I mean such as Currants, Gooseberries, and Raspberries, which old housekeepers know if preserved other than quite ripe will not keep. The fruit has therefore been unsaleable to the cautious,

Bird extermination would in England be impossible, and would if possible be a mistake; but preserving a proper balance is wise and right. When a man can shoot in his own garden two dozen blackbirds and thrushes a day, who can deny that birds are not too numerous? No doubt the late severe two months have thinned down the pilferers somewhat, and I am very glad of it. Just as I rejoice that poisoned grain is forbidden to be scattered about, so, on the other hand, I think over-preservation by Act of Parliament is an utter mistake. The worst is that London and its immediate neighbourhood have greater influence than all the rest of England. The law might have been in force against London bird-catchers, but that law is mischievous many miles away from London. The gun license has again resulted in great additions to all sorts of birds. Poor men renting a few acres cannot afford to pay 10*s.* for the privilege of using a gun, hence they are great losers by the depredations of rooks and woodpigeons; the latter having increased most marvellously, there being no hawks to make meals off their plump breasts. Thus on all sides the reproduction of small birds has been assisted by gamekeepers, by policemen, by sentimentalists, and by gun licenses, until they have become in some parts as perfect pests as locusts of old, eating up all kinds of fruits, clearing out pea pods and pulling up newly-sown seeds; their great numbers causing them to be more crafty and bold than formerly, inasmuch as there is among them a struggle for existence, enough food not being easily obtainable. The result of all is a great diminution of food for man, and loss to those who live by its sale.

In the name of common sense let there be no sentimental pleas about "the dear birds"—dear in another sense they are, for they cause a great national loss, and when every portion of

food ought to be carefully husbanded. It may be worth while to note, that no gun license need be paid for by any man shooting on his own premises, but he must be careful not to use a gun within 40 yards of a high road. It is the case with small birds as with what are termed "coarse fish;" the latter are very numerous in the east of England, particularly in Norfolk, and need no Act of Parliament for their preservation, the fish being beyond the requirements of the anglers. It is the reverse near great manufacturing centres—*e.g.*, Sheffield, where the anglers are in excess of the fish. So with small birds, it is quite possible that near London, or near Glasgow, there may be few, but in the south-west counties of England they swarm.

All I plead for is a proper balance being preserved—no extermination on the one hand, and no allowing a vast and injurious increase on the other. Fire and water are good servants but very bad masters. Small birds are the same.—WILTSHIRE RECTOR.

NOTES AND GLEANINGS.

WE observe from a communication published in another column that a valuable CHALLENGE CUP for forty-eight blooms of CHRYSANTHEMUMS will in all probability be offered at Kingston-on-Thames next autumn. Growers from all parts are eligible to compete for the trophy on payment of an entrance fee of one guinea. The discussion that has taken place in our columns has undoubtedly had a stimulating effect, and we are glad to observe that it is not likely to be fruitless. We further gather from a great number of letters, not half of which we have been able to publish, that a strong feeling exists in favour of a National Chrysanthemum Show being held in preference to what has been aptly termed a "floral duel" between two districts.

—— REFERRING to Mr. Byron's note on page 83 on "FASCIATED" THORN TREES, a "FORESTER" observes that, while it is quite true that large old Thorn trees will occasionally divide and form two and sometimes three separate trunks, yet the majority of Thorn trees which have several trunks really represent so many suckers springing from one stool. Many Thorn trees in parks are of a great age, and although they may not have been originally hedgerow trees (as undoubtedly is the case with many of them), they may be the remains of some old forest, out of which many parks surrounding British mansions have been formed.

—— A CORRESPONDENT ("H. B.") remarks that while the charming and floriferous Deutzia gracilis is so deservedly popular, he thinks the DEUTZIA CRENATA FLORE-PLENO is unduly neglected. This Deutzia, although not forcing so quickly as D. gracilis, and being less pure in colour, is yet highly attractive, and plants have the merit of lasting a long time in beauty; "H. B." finds plants of the double Deutzia very valuable, and he thinks its cultivation ought to be considerably extended.

—— MESSRS. STUART, MEIN, & ALLAN, Kelso, have sent us leaves of their VARIEGATED BORECOLE. Quite twenty of the leaves are dissimilar in colour or form. Some of them are smooth, others fringed; and two of them—one green with a white midrib, and the other green tipped with mauve and a deep red midrib—are curled similar to Parsley. The colours of some of the smooth leaves are buff veined with pink, purplish red fringed with olive green, pink fringed with greenish yellow, mauve fringed with green, and red fringed with green. The colours are bright and well defined, and all the leaves before us are attractive.

—— A CLARE subscriber who lives in an EXPOSED POSITION AND MILD CLIMATE two miles from the sea and 400 feet above it, with a straight outlook to America, states that the following shrubs succeed best in his garden:—Fuchsias Riccartoni, virgata, and globosa; Buddlea globosa, Leycesteria formosa, Viburnum Opulus, Ribes of sorts, Veronicas in variety, Escallonia macrantha, Hydrangea hortensis, Hypericums, and Salvia regia. Of trees the Dutch Alder and Poplar are the quickest for giving shelter.

—— ONE of the most beautiful of all variegated plants is YUCCA FILAMENTOSA VARIEGATA, but to see the plants in all their attractiveness they should be potted in peat and grown in heat. If potted in loam, as we often see them, and placed in a dry cold greenhouse temperature, the variegation is of a dirty yellowish white, but when grown in peat and placed in a light intermediate house the variegation is pure white and spotless. A genial temperature also induces the leaves to grow freely, and to assume a slightly recurved habit, then the plants are far more elegant and handsome than when the foliage is erect, as it generally is when the plants are not excited by a little heat.

—— A CORRESPONDENT, "F. S.," states that FUCHSIA AUREA SUPERBA is one of the most distinct and valuable of decorative varieties. It was, he informs us, raised in America, and was distributed by Mr. Cannell. It is the nearest approach to a yellow of any Fuchsia in cultivation, grows freely, and produces large corymbs of flowers. He has found it valuable for conservatory decoration, where it has been much admired on account of its freedom of growth, profusion of flowers, and novel colour; and hence he recommends it to cultivators as worthy of being added to their collection for home embellishment.

—— AN Irish correspondent, referring to the relative productiveness of NEW AND OLD SEEDS, states that he has reason to know that the practice of mixing old seeds with new is not quite extinct. He procured packets of Auricula, Polyanthus, and Pansy seeds, and some others from an English firm, and sowed as directed, with the hope of having new varieties. The seeds remained a long time in the soil before any seedlings appeared, and those that came were few and puny. He sowed at the same time seed of his own saving as soon as ripe. The seedlings came up at once, were strong and healthy, and are now fine plants.

—— "IT has often struck me," writes Mr. Brotherston, "that the ornamental British plant, EUPHORBIA LATHYRIS, might be advantageously employed for certain positions in the flower garden. It now comes up in the borders at Tyninghame freely from self-sown seeds, and invariably arrests attention from visitors, the great majority of whom look upon it as a rarity."

—— ACCORDING to recent official statements, the land in the United States appropriated to the FRUIT INDUSTRY is 4,500,000 acres. On this grow and flourish 112,000,000 Apple trees, 28,000,000 Pear trees, 112,270,000 Peach trees, and 141,260,000 Grape Vines. The total value of the fruit crop throughout the United States is set down at 131,216,700 dols., an amount equal to half the value of the average Wheat crop of the country. Towards that large sum Apples are held to contribute 50,400,000 dols., Pears, 14,130,000 dols., Peaches, 46,135,000 dols., Grapes, 2,118,000 dols., Strawberries, 5,000,000 dols., and other fruit, 10,432,000 dols. In the meantime the home and foreign demand for canned fruits and vegetables is yearly on the increase. Nearly every kind of fruit is now preserved by the "canning" process; so also are Asparagus, Peas, Corn, and Tomatoes.

A NATIONAL CHRYSANTHEMUM SHOW.

SEVERAL of your correspondents having proposed a Chrysanthemum contest between northern and southern growers to be held in Birmingham this year, and as we are now about to prepare our schedule of prizes, we shall be pleased to receive any proposition for holding such contest at our next Show. Having some good exhibitors in this neighbourhood, we should be pleased to contribute to the prize list, provided the contest is a national one, open to all comers.—C. REDFERN, *Secretary of the Chrysanthemum Society, High Street, Birmingham.*

[We have also received an excellent letter to the same effect as the above from Mr. Hughes the late Secretary; also one from Mr. Palmer, The Larches, Birmingham, offering to collect subscriptions. Mr. Bardney also states that the Liverpool growers are prepared to meet their London friends at Birmingham, both districts contributing to the prize list, or they will compete in London if good prizes are offered, the north not helping to find the money. Mr. Bardney explains also, that while the original offer to meet in London was made in good faith, all the Liverpool growers had not then been consulted on the matter.—EDS.]

ACACIA DECURRENS.

THIS beautiful Acacia appears to be very little grown in our gardens, whether through neglect or from gardeners not being acquainted with it, I cannot say. It seems to possess all the good properties of a winter-blooming plant, and is much admired as a covering for the back wall of a greenhouse or

conservatory, also for affording cut sprays during the dull winter months. A plant of this Acacia raised from seed in 1871 was planted against the back wall in our conservatory in 1873. It reached the top in 1877, a height of 25 feet, and is well furnished with side shoots from the bottom to the top; it is 15 feet across. It produces its beautiful yellow flowers in sprays at the end of the young shoots. The plant commenced flowering about Christmas, and it still produces a charming appearance. I enclose a spray for your inspection.—E. FIXTHE, *Whinney House, Gateshead-on-Tyne.*

[We never saw a finer spray of this attractive and useful Acacia.—EDS.]

ADONIS VERNALIS.

THIS charming spring flower may almost be looked on now as one of our rarer herbaceous plants, as it is seldom met with in ordinary gardens. Most likely it suffered considerably in

Fig. 15.—Adonis vernalis.

the wholesale slaughter of the innocents that took place some thirty years since, when the gayer mode of bedding began to find favour. Certainly, to judge from the frequency with which we find it mentioned in the garden books of a generation ago, it was then very much more common than it is now.

The perennial Adonis-flowers from a gardener's point of view may be said to occupy a place between the fibrous-rooted Ranunculuses and the Globe-flowers, and A. vernalis surpasses in attractiveness any of the species of these. The plant grows from 9 to 15 inches in height, rarely more. The leaves, which are stalkless, cluster at intervals round the flower stems in dense tufts. The flowers are borne singly, one on each stem, and are 2 to 3 inches across, of a peculiarly bright yellow, which is rendered all the more brilliant by the deep green of the finely divided leaves among which they nestle. It flowers during March, April, or May according to situation.

It has been used for spring bedding, but for that as generally carried out it is not very well suited. Like its allies the Hepaticas, it does not thrive if subjected to yearly removal unless when grown in pots, and I have never seen any so grown that were at all comparable with those grown on a warm border or well-prepared rock bed, and left there undisturbed year after year. It requires a deep, rich, but open soil, and perfect drainage. It is usually increased by seed, though to a limited extent it can be propagated by careful division after it has flowered. The seeds should be sown as they are ripe, which is mostly in the beginning of August. They will not germinate before the following spring, and if sown on the open border they should be protected from severe frost during the winter.

It is a native of the mountainous parts of middle Europe, and is especially plentiful in Prussia and Bohemia.—R. D. TAYLOR.

NOTES ON GRAPES.

ALTHOUGH Mr. D. Thomson says at page 21 that we generally differ in opinion, I think in many things the difference is more apparent than real, at least I would never wish for any of my practice or writing to be more thoroughly substantiated than Mr. Thomson did my remarks on mixed fruit houses at page 3. I am sure many would do well to put the details there given into practice. It is all very well for So-and-so to say, "Keep your Grape houses free from plants and devote them to Vines solely;" but I say this is not the most profitable mode of cropping, and throughout the season other plants of much value might be grown in the vinery without injuring the Grapes. We are never satisfied unless every corner of our vineries, pineries, Peach houses, &c., is full of Strawberries, French Beans, and plants of different kinds, and the produce is rarely discreditable.

I will now turn to Grapes. I was delighted to find such a superior cultivator as Mr. Thomson stating his experience on this important subject. I hope many more may do likewise. I have seen Golden Queen in the hands of many cultivators, but I never yet saw it ripen imperfectly or scald as it has done with Mr. Thomson. I am certain this character does not belong to it. Nothing of this kind has been observed here, and it is grown in a Hamburgh house with hardly any artificial heat.

I should have been glad if Mr. Thomson had told us more about White Lady Downe's. He thinks my remarks on it "sweeping," but he has not much to say in its favour. Is it grown at Drumlanrig? Does the raiser grow it himself at Clovenfords? My reason for asking these questions is simply to prove what grounds Mr. Thomson and I have for differing in opinion; and if the Grape is proved to be better than I said it was no one will be more glad than I to hear it, as I write as much to bring out the good points of Grapes as the bad. I must still assert that Buckland Sweetwater is a most useful Grape, in flavour much superior to the generality of Lady Downe's, Alicantes, Gros Colmans, and several others; and what can surpass it in its simple requirements of culture? Grapes which will succeed well with everybody have, I think, always an extra claim to public notice. This is why I think the less said about Golden Champion and Duke of Buccleuch the better. Mr. Thomson says it succeeds with him without any special treatment whatever, but I question if anyone could point to half a dozen instances of it succeeding under the same treatment. What I grow myself in the way of Grapes, vegetables, &c., are those that will succeed best under good ordinary treatment; and what I recommend to your readers will succeed with the treatment that every ninety-nine cultivators out of a hundred can afford to give. As a rule, I have found that to recommend that which will not always succeed even under the most skilful appliances leads to nothing but disappointment, and certainly this comes quick enough to everyone in gardening practice without being specially incurred.—A KITCHEN GARDENER.

ŒNOTHERAS.

BESIDES the species previously noticed the following I find useful for border decoration.

ŒNOTHERA ANISOLOBA (fig. 16).—This species is of erect habit, growing to the height of about 2 feet. The flowers, which are white, very much resemble those of Œ. taraxacifolia, but are not quite so large, and the petals are more lobed. They also assume a pinkish tinge before they fade. The radical leaves

are entire or obscurely toothed, those of the stems deeply pinnatifid, and all parts of the plant are slightly pubescent. It is a border plant of sterling merit, and may be included with credit in every collection of hardy plants however select. It cannot, however, be said to be entirely hardy, and I account it a little less so than Œ. macrocarpa. Like that species it

Fig. 16.—ŒNOTHERA ANISOLOBA.

cannot endure a wet sodden soil in winter, and it has been recommended to remove the soil from round the crown of the plants in autumn, replacing with dry sandy compost, and then during the winter putting a little mound of sawdust or cocoa fibre over each, covering the whole with an inverted flower pot or handglass. This may be necessary in clayey soils, but in those of a lighter texture a handful of dried fern laid over each plant and pegged down with two stout willow sprays is all that is required. For soil it prefers a mixture of peat and loam, rich and open but not too dry. As it cannot

be so conveniently propagated from layers as the prostrate sorts, careful division of the crowns early in autumn is advisable.

Œ. SPECIOSA is a handsome white-flowered species, 18 inches to 2 feet high. It flowers profusely on a lengthened spike, each flower 3 to 4 inches across. They are more fragrant, and also appear to expand more frequently during the daytime than those of many of the other sorts. It is also unique in preserving its colour to the last, not fading off pink or rose like the others. It is sometimes used as a bedding plant, but this is not its forte, as it does not show to advantage amongst its garish neighbours. The root leaves are twice pinnatifid, those of the stem remotely toothed and slightly downy. Blooms from June until late in autumn.

Œ. FRUTICOSA is a robust yellow-flowering sort with half-woody stems, which, growing erect at first, afterwards assume a decumbent habit. The flower stems, which are seldom branched, rise to a height of between 2 and 3 feet, terminating in a short corymb of yellow flowers, which appear during June, July, and August. In winter it forms a dense cushion of oval-shaped dark green or purplish leaves, and can be quickly and easily increased by division. As an ornamental plant it can hardly be said to rank very high, but it looks well on rockwork when that is on a sufficiently large scale. Œ. serotina appears to be only a variety of this, differing from it chiefly in having leafy flower stems.—R. D. TAYLOR.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 11TH.

OWING to the annual meeting of the Society being held in the Council-room the collections of plants and fruit submitted to the Committees were arranged in the conservatory; indeed, the contributions of the nurserymen could not have been accommodated in the room, as they occupied nearly the whole of one side of the conservatory.

FRUIT COMMITTEE.—Henry Webb, Esq., V.P., in the chair. Mr. Killick, Langley, Maidstone, sent six varieties of dessert Apples to show their keeping properties and their flavour at this late season. Pearson's Plate was very tender in the flesh and of good flavour, though evidently rather past its best. Golden Knob was not quite so well flavoured, and rather more acid. Wyken Pippin very tender in flesh, sweet, and of high flavour; a very fine Apple. Mannington's Pearmain was not quite ripe, and was acid without much flavour. It will evidently keep for some time longer. Ribston Pippin was in excellent condition, with tender flesh, sweet, and of high flavour. Cox's Orange Pippin was in very good condition, and had a fine briskness with great richness of flavour. A vote of thanks was unanimously awarded to Mr. Killick for the collection. Mr. John Cox of Redleaf sent specimens of the Redleaf Russet Apple, which received a first-class certificate a year or two ago. It was very tender in the flesh and rich in flavour, and quite maintained its good reputation. Mr. Sidney Ford, The Gardens, Leonardslee, Horsham, sent a seedling Apple called James Veitch, but it was not of very good flavour.

Mr. Haycock, The Gardens, Barham Court, Maidstone, exhibited splendid dishes of Calville Blanche Apple, one of fruit grown in an orchard house and the other grown out of doors on an espalier. The former was of a bright golden colour, and the flesh remarkably tender with a fine delicate flavour; those grown out of doors were larger and greenish yellow. The flesh in this instance also was remarkably tender and of excellent flavour, though rather more acid than the former. Pine Golden Pippin was in perfect condition, very richly flavoured, with a fine aroma. Calville Rouge d'Hiver was also very tender in the flesh, but the flavour was not equal to the Calville Blanche. Passe Crasanne was not equal to the old Crasanne. Besides these Mr. Haycock exhibited thirty varieties of Apples and twelve of Pears. In consideration of the fine condition of the fruit and the excellence of its cultivation the Committee awarded a silver-gilt Knightian medal. Messrs. Rivers & Son of Sawbridgeworth sent a very interesting collection of forty-nine varieties of Apples, many of them rare varieties not in general cultivation. A vote of thanks was awarded.

FLORAL COMMITTEE.—Dr. Denny in the chair. It was announced in the schedule that forced shrubs would be represented at the meeting. Messrs. Veitch's collection consisted almost wholly of forced shrubs—Lilacs very dwarf, Rhododendrons, Ghent Azaleas, Viburnum Opulus, Azalea amœna, and the chastely beautiful Staphylea colchica. The collection also included Cyclamens with fine flowers in varied colours, good pots of Lily of the Valley, and Tulips, the whole being backed by a few Palms. Messrs. Veitch also exhibited Dendrobium endocharis, the result of a cross between D. japonicum and D. heterocarpum; the flowers are small, nearly white, and deliciously scented. Mr. Wills arranged an attractive group comprising Palms, Dracænas, Azaleas, various Orchids, groups of Lilies very fine, with a groundwork of small Ferns and Lycopods.

Mr. Bull's contribution was an excellent one, and distinct as containing some very fine Cycads. The diversified appearance of these plants is very noticeable; some being severely rigid, others stately, and others, again, elegant. Very beautiful is Macrozamia Mackenzii, the arching fronds being elegant, the midribs suffused with pink and the base of the leaflets ivory white. It bears some resemblance to M. cylindrica, but is of more erect growth. Very fine also is Cyphokentia macrocarpa, for which a first-class certificate was awarded. The plant is robust yet graceful, the stems resembling polished mahogany. Amongst the flowers in this group we noticed good varieties of Lycaste Skinneri, Lælia anceps, Oncidium macranthum hastiferum, very fine; Cattleyas Warscewiczii delicata, and Trianiæ; Odontoglossum Pescatorei, Dendrobium McCarthiæ, the curious Masdevallia polysticta, the small and chaste Dendrobium Fytchianum, and the elegant Eucharis candida. The group also contained several plants of Sarracenia Drummondii alba and Dracæna Goldieana. Mr. Williams' group was composed almost wholly of flowering plants. A large plant of Cœlogyne cristata was a mass of purity, and in fine contrast were highly coloured Amaryllises and the brilliant Sophronites grandiflora; Odontoglossum Rossii majus was represented by a fine variety. Noticeable also were O. cirrhosum and Dendrobium Wardianum. Mr. Williams also exhibited some fine baskets of Primulas, including the new variety Coccinea, which is unquestionably rich and fine. The white and red varieties have also remarkably large and fine flowers. Mr. Williams further exhibited Asplenium neo-caledonicum, a dwarf and elegant plant with finely divided dark fronds, also Abutilon igneum.

Messrs. Osborn & Sons, Fulham, staged a bright and meritorious collection consisting of Rhododendrons, Azaleas, Lilacs, and Spiræas, interspersed with Palms, and fringed with Hyacinths, Tulips, Crocuses, Lilies, and Deutzias.

Mr. Cannell as usual staged splendid masses of Zonal Pelargoniums, amongst which Dr. Denny was strikingly rich, and White Vesuvius pure. The box was enhanced in beauty by being surfaced with a carpet of Nertera depressa, very fresh and healthy. A vote of thanks was awarded to the exhibitor.

Mr. Parr, The Gardens, Harrow Weald Park, exhibited three heads of Poinsettias cut from plants in 6-inch pots. The heads were 15 inches across, and the bracts were broad and highly coloured. The heads afforded evidence of superior culture, and a vote of thanks was awarded. Mr. Parr also exhibited dwarf plants of new Abutilons, but they were passed by the Committee, as also was a box of cut flowers. A beautiful box of cut flowers of Abutilons interspersed with Maidenhair Fern was exhibited by Mr. George, Putney Heath, who was awarded a vote of thanks. Mr. Salter, gardener to W. Cobb, Esq., Silverdale Lodge, Sydenham, exhibited Odontoglossum Rossii majus, very clear in colour and with distinctly reflexed sepals. Mr. Rann, gardener to J. Warren, Esq., The Gardens, Handcross Park, Crawley, staged Phalænopsis grandiflora gigantea with very large flowers. Mr. Green, gardener to Sir G. Macleay, exhibited cut flowers of Rubus rosæfolius var. coronarius, to which a first-class certificate was awarded. The flowers resemble semi-double white Roses 2 inches in diameter. Mr. Green also exhibited the distinct lavender-coloured Dahlia Maximiliana, and fine flowers of Sparmannia africana, and was awarded a vote of thanks. An attractive basket of flowers—white Azaleas and scarlet Carnations arranged in concentric rings—was sent by J. J. Wheble, Esq., Bulmershe Court, Reading; and Mr. Parker, Tooting, sent very fine flowers of Aponogeton distachyon.

From the Society's Garden at Chiswick came an extensive collection of Primulas, representing old types and new colours—one of them, violet red, is the richest in colour of all Primulas that we have seen, and the flowers are also very good. The collection was novel and instructive.

Medals were recommended as follows:—A small gold Banksian to Mr. Bull, silver Banksian to Mr. Williams, and silver Floras to Messrs. Veitch, Wills, and Osborn.

THE CHRYSANTHEMUM CONTROVERSY.

IF Mr. Hinds is to be considered the mouthpiece of the Liverpool Chrysanthemum growers it must be assumed that they have formally receded from their challenge. I now wish to observe that Chrysanthemum societies abound around London, and several prizes will be offered this year equal to the Liverpool prizes of last year. At these exhibitions the Liverpool growers will have the chance of testing their skill against the southern growers. I am informed that the Ealing Horticultural Society offers three guineas, two guineas, and one guinea in prizes, open to all, for twenty-four cut blooms—eighteen incurved varieties and six Japanese; and that at the Kingston and Surbiton Chrysanthemum Society a champion challenge cup of not less than twenty guineas in value, but possibly twenty-five guineas, is being subscribed for by the Vice-Presidents of that Society. This is to be offered for a collection of forty-eight blooms—twenty-four incurved varieties distinct, and twenty-four Japanese varieties. Money prizes also of £3, £2, and £1 will

be offered in the class. The cup is to be won in four years. If A wins it the first year, B the second, and C the third, A, B, and C will compete alone the fourth year; but if either A or B wins it twice it becomes his property. All the classes in the Kingston schedule are free to all with the exception of this prize referred to, which is to be limited to subscribers of one guinea. Liverpool growers, pay your guinea and compete! J. W. MOORMAN.

THE AMATEUR'S ORCHARD HOUSE.

SINCE commencing the growth of miniature fruit trees in pots and tubs under glass, I have concluded there is as much pleasure to be derived from the practice as from the growing of flowers. Be that as it may, undoubtedly the growing of fruit in pots is a source of much enjoyment. The twelve very superb Irish Peach Apples staged at the International Show when held at Manchester by Mr. Jones, gardener to Her Majesty, first prompted me to grow fruit in this way; and I can truly say that I have derived great enjoyment from the practice.

Let me here premise that success does not depend upon the acquisition of any particular secret. The most ordinary intelligent common-sense treatment is all that is necessary. From any of our nurserymen small trees in pots studded with fruit buds can now be had, and the pleasure of cultivation commences at once.

On the arrival of the trees it is well to wash them carefully or to paint them, as preventing the admission of insects of any tribe into any house is always easier than their after banishment. For painting Plums and Peaches I strongly recommend the following mixture, the recipe for which I obtained from this Journal:—Sulphur vivum, Scotch snuff, quicklime, and soot in equal parts mixed with soapsuds. After this is applied most certainly green fly will not attack the first five leaves of a Plum tree; and that is something, especially when the point of the shoots can then be taken out with advantage.

What makes this mode of fruit culture enjoyable is its simplicity. The only real need for glass is when the trees are in bloom, for protection—say up to the middle of June, when frost may be considered gone. The glass adds to the length of the season, secures the crop, and the removal of the trees to the open air afterwards adds to both the colour and flavour of the fruit. The prettiest sight I had last season was an Early Ascot Peach tree bearing about twenty fruit. For a small collection I recommend Hale's Early and Early Ascot Peaches, and Lord Napier and Pine Apple Nectarines. These are two of the late Mr. Rivers' seedlings—an early and a midseason variety—and with me they were both charming to look at, and of delicious flavour. Good Plums are Jefferson and Kirke's. Apricots having a way of their own are as well excluded. Figs, White Marseillaise. Pears, Souvenir du Congrès and Pitmaston Duchess. Apples, Irish Peach and Worcester Pearmain. A May Duke Cherry may be added to make up the dozen.

The pots in which the trees come may, perhaps, do the first season, but if so I would place them within larger pots, and fill the vacancy with cow or stable manure. I decidedly like boxes or tubs best, and prepare them in this way: Take the bevel from a flower pot, fix the size, and then cut all the ends. For overlapping cut the sides 2 inches larger. Nail each end to two corner cleats, nail on the sides, and then nail two or three laths across the bottom. If the size be too large for easy lifting about, nail two fences of lath across the ends at the top, allowing each to project a little, and then with two strong sticks two people can carry the tubs about easily. After the boxes are made place a few chips and a shovelful of fire into one, when it will soon be in a blaze. Watch it carefully, and the moment it is well charred throw it upside down and put the fire into the next one. If the fire does not go out let a shovelful of soil be thrown in. I much like charcoal, and here you have it with its preserving powers where necessary, and a box so charred inside and well painted outside will last for years. Regarding watering, I particularly advocate a constant genial moisture. I never like to see water run off a pot like quicksilver. Drain the pots or tubs well, and avoid sourness of the soil by watering intelligently.—J. WITHERSPOON.

WOLFF'S GARDEN PENCILS.

I HAVE often heard it remarked that no subject connected with horticulture is too large for the *Journal of Horticulture* to deal with, and probably none is too small. Assuming this to be the case, I wish to refer to the above garden pencil. Along with my kitchen garden seeds this year I ordered two of the pencils; their length was quite 6 inches. The first thing I observed about them was that the lead was not visible at both ends; to find it I cut away at one end until there was not more than 2 inches left, and this is the whole length of the lead. Now I do not think anybody could grumble much about being served in this way with a halfpenny pencil, but I do think we have a right to expect something better when the price is 3*d*. This is the first time I have ordered "Wolff's Garden Pencils," and it will be the last. An ordinary "B.B." penny pencil, with lead from end to end, is perfectly good for any label-writing, and if the writing is gone over twice it will last for years in the open air.—A KITCHEN GARDENER.

FROST AND VEGETATION IN IRELAND.

THINKING that statistics from various parts of the country relative to the effects of the late abnormally severe weather may be of use and interest to your readers, I send you a list of killed, wounded, and safe among the less fully hardy of my shrubs and plants. I may begin by stating that I am on the east coast of Ireland, on a high and dry situation, about a mile and a half from the sea, with a rich stiff loam soil.

Aralia Sieboldi is quite untouched, Aralia quinquefolia much injured but will survive, Pittosporum Tobira much injured, Pittosporum undulatum has lost foliage but is unharmed, another Pittosporum with small silvery leaves has escaped, Thuja Donniana much withered, Arthrotaxus Donniana is safe, New Zealand Flax is killed, a large and very dense plant of Muhlenbeckia complexa that covered an arch is dead, Chloysia ternata though standing unprotected in the open is safe, Pampas Grass and Arundo conspicua have their leaves much bleached, the former the more so, but are uninjured. Some large bushes of Erica arborea have lost all their leaves, and as specimens are, I fear, permanently spoiled. Elæagnus japonica aur. var. is but a little touched. Fine plants of Cordyline australis were among the first to bow the head and die. Pinus insignis and Abies Douglasi have proved themselves thoroughly hardy, they are not even slightly rusty. Podocarpus Andina is quite safe, but Podocarpus Koraiana is browned. Tree Pæonies are swelling their buds as if nothing strange had happened. Rhododendrons are safe, and even the Sikkim variety, R. Falconeri, is swelling its flower buds and has not lost a leaf. All the varieties of Veronica are greatly cut. Large plants of narrow-leaved Myrtle standing in the open will lose all their foliage, but otherwise are, I think, safe enough. Laurustinus, Laurels, and Portugal Laurels are unscathed, but Bay has its leaves shrivelled. Benthamia fragifera appears to have come off safely, but it is in a very sheltered position. Two beds of Echeveria secunda glauca that have stood a trial of eleven years are this year much cut, but in another part of my garden they are as fresh as ever. Those that have suffered have done so from the sun while thawing. Agapanthus umbellatus seems killed to the ground, worse than I have seen it these thirty years.—FREDERICK TYMONS, *Co. Dublin.*

NOTES ON VILLA AND SUBURBAN GARDENING.

ON the 4th of February we lost sight of the snow, and the long term of continued frost ceased. We were further gladdened with a view of the sun, which had not been seen for many days. Altogether the month of January in the neighbourhood of London has been one of the darkest and dullest for many years past. The wind remained stationary in the east, and the frost prevented the ordinary outdoor work from being proceeded with; consequently there are many arrears to bring up, and as soon as the state and condition of the soil allow work must be resumed in earnest.

PLEASURE GROUNDS AND SHRUBBERIES.—The most necessary operations in pleasure grounds after a spell of frost is to sweep and well roll both walks and lawns. The gravel of the former is often so raised by frost that the walks can only be made to resume their former solid state by several heavy rollings. Grass plots are also materially benefited by the same process. The edges of the turf bordering on the walks should now be trimmed neatly with the edging-iron. Any digging of borders and pruning of shrubs not completed must be pushed forward; the digging being limited to running the spade just beneath the surface of the soil for the burying of weeds and leaves, regulating the growth of the shrubs as the work proceeds so that neatness and cleanliness are everywhere visible.

KITCHEN GARDEN.—The past month has afforded excellent

opportunities for wheeling manure for the various crops; but much trenching and digging remain to be completed. Every effort must now be made to expedite such work, and seed-sowing and planting must be performed when the state of the soil permits. Peas and Beans should be sown at once. Laxton's Alpha and William I. are two good Peas for present sowing. The last has a very hardy constitution, and both are early Marrow varieties of excellent flavour. Drills should be drawn about 3 feet 6 inches apart and 3 inches deep; the seed should be sown moderately thick, and if the ground is heavy a covering of lighter soil (such as the waste soil from the potting bench) will accelerate the growth of the Peas. It is a very common and a good practice to sow a row of Spinach between the rows of Peas. It comes into use early, and is off the ground before the Peas are all gathered. Early Longpod and Seville Longpod Beans are useful and prolific sorts, and should have a warm border allotted to them. Potatoes for planting should be first laid out thinly in a light and rather warm position, and they will soon produce short stubby growths; when these are about half an inch long the tubers should be planted in the open ground. The Ashleaf Kidney and its varieties are the best for early planting. Early Rose is an early variety and wonderfully prolific. On light dry soils it is also of good quality, but generally its flavour will bear no comparison with that of the old Ashleaf.

Cabbage plantations require examination. We fear many plants have been killed by the late severe weather. All blanks should be filled up if plants are procurable. Those sown in heat and pricked out to harden will soon be ready for this purpose. Another sowing should be made now under handlights or in cold frames. Early York, Wheeler's Imperial, Cocoa Nut, and Heartwell Marrow, are all excellent, small, early-hearting varieties. Cauliflower plants in frames or under handlights should have plenty of air given by entirely removing the lights on mild days. Stir the soil around the plants, and dust with lime to prevent slugs from eating them. Early Cauliflowers will be doubly welcome in most gardens, as the spring Broccoli has suffered severely, in many situations being entirely killed.

The ground should now be prepared for the main crop of Onions. On light soils we usually sow from the 14th to the 21st of February in shallow drills 9 inches apart. In heavy soils sowing may be deferred until March. The Brown Globe, White Spanish, and James' Keeping are good standard varieties; and the Banbury, an improved White Spanish, produces very handsome bulbs. The Queen is a small variety, bulbs early, and is often useful when the supply of Winter Onions is short. Transplant Tripoli and other autumn-sown varieties on highly manured ground. This is the proper season for sowing Parsnips. Sow the seed thinly in drills a foot apart and about 2 inches deep; deeply trenched and well pulverised soil prevents forked or deformed roots. The Hollow-crowned and the Student are useful varieties. Make a sowing of Curled Parsley, which is always in request. Sow in drills about 9 inches apart unless it is used as an edging to a path or walk. Sow Lettuce on a warm south border. The Paris White Cos and the small early Paris Market Cabbage are suitable varieties. Make good all blanks in the crop of Hardy Bath or Brown Cos that has withstood the winter, and hoe and loosen the soil between the plants.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Sowings of Carrots and Radishes may now be made on borders at the foot of walls having a southerly aspect, the borders being 18 to 24 inches wide, and covered with a few inches of light rich soil in which to sow the seed. Wood's Frame, White Forcing Turnip and French Breakfast Radish, Early Horn and Early Nantes Carrot, are the most suitable for this sowing. Upon similar aspects a sowing of Cauliflower, not omitting Veitch's Autumn Giant, Brussels Sprouts, Savoy Cabbage for late summer and autumn use, Lettuce Early Paris Market and Bath Sugarloaf, and a little seed of Leeks, may also be sown for affording plants for an early supply. The seed may be thoroughly moistened with water and then coated with red lead, which is sufficient to ward off the attacks of mice and birds. A few branches placed over the borders will be an advantage until the plants appear, after which they must be removed, though a few leafless sprays may be retained for breaking the force of cutting winds. As soon as the state of the soil permits make a successional sowing of Peas of the early varieties upon a warm border, introducing a single row of Round Spinach between every two rows of Peas, with a view to the early clearing of the ground occupied by the winter Spinach. Sow also Broad Beans. Young Turnips are always acceptable: a sowing of the Early White and Red American Strapleaf may be made upon a warm border, one with an east aspect is suitable. Sparrows are particularly partial to Peas just emerging from the ground; a dusting of fresh soot or dry wood ashes whilst the Peas are damp will secure them against their attacks and that of slugs. Celery will soon show indications of bolting. It is a good plan to lift the intermediate plantings at this season entirely, retaining a ball of soil to each plant; lay them in on a north aspect, covering the stems with cocoa refuse, spent tan, &c. Plant Jerusalem Artichokes in rows 2 to 3 feet apart according to the richness of the soil, and the sets 18 inches apart in the rows, selecting good round sets. An open situation should be afforded, for Artichokes well repay any trouble taken with them, and are deserving of something better than an out-of-the-way corner and being allowed to come from self-planted sets. Shallots and Garlic, with Onions for scallions and for seed, should be planted. Potatoes of the early kidney and round kinds may be planted upon a warm border, placing the sets from 4 to 6 inches deep. If there is convenience a planting made at the foot of a south wall and about a foot from it will come in early, succeeding those in frames. Roots of Seakale that have been forced may be planted when the ground is in a suitable state.

HARDY FRUIT GARDEN.

The prolonged severe weather has kept vegetation at a standstill and whetted the appetites of bud-devouring birds. We hear of the sparrows in the neighbourhood of towns, villages, and farmsteads completely stripping the Gooseberry bushes, and of whole orchards being ruined by the barking of the trees by hares and rabbits. It is all very well to tell of the value of sparrows to a garden and to become rapturous over the plumage of the bullfinch, but something more than sentiment is necessary to secure a crop of fruit. There is no bird with the effrontery of the bullfinch, and no means of preventing its following its natural propensity except slaughter. We admit the birds are very beautiful, but experience tells us they are also very destructive of fruit buds. A pair of birds has spoiled us more than once a whole quarter of bush fruit trees; but what are a pair to over thirty that we are compelled to destroy annually? For preventing injury by hares and rabbits we find nothing better than wire netting, inch mesh, fastened loosely about 3 feet high around the trunks of the trees. Where the pruning of bush trees has been deferred proceed with it as opportunity offers, as with a return to mild weather vegetation is likely to be rapid. Complete for the same reason the planting of fruit trees. Apricots are swelling their buds. If the trees have not as yet been pruned complete this as soon as possible, thinning out the long bare shoots, training fresh wood in their places, and shorten any attenuated spurs, so as to keep them close to the wall. Lay-in all the young wood there is room for, but avoid overcrowding. Timely attention must be given to providing the necessary protection to prevent injury from frost, not, however, employing it until the blossoms show colour. Glass copings are admirable, or even copings of boards; they should be procured and fixed at once, so that all is in readiness for further protecting material, which will be referred to in due time. Where Peaches and Nectarines have been loosened from the walls it will be necessary to dress the trees with an insecticide, removing the weak bare branches and training others in their places. The principal branches should be 12 to 15 inches apart, and the bearing wood upon them a similar distance. In shortening the bearing wood cut to a wood bud or a triple bud, making sure that the centre one is small and pointed; and if the bearing wood be weak it may happen that there will be wood buds at the base and extremity only: such growths must not be shortened. In securing the branches to the walls use no more nails and shreds than are absolutely necessary; and in tying the branches to wires secure them loosely, as too tight nailing or tying are prolific sources of gum. A composition formed of 1 lb. of soft soap and half a gallon each tobacco juice and water, brought to the consistency of cream, is a suitable application for dressing the trees. Cherries, especially Morellos, are so subject to attacks of aphis, that they ought not to be allowed to go undressed with the above or a similar composition.

FRUIT HOUSES.

Vines.—Fruiting Vines in pots must have generous treatment, affording them weak liquid manure 10° warmer than the house in which they are growing. Where the pots are plunged the fruit will be much improved by allowing the roots of the Vines to pass into the plunging material, surfacing the pots with some partially decayed manure. Maintain a moist atmosphere by damping the floor as required, and especially at closing time, using, when the Vines are in full leaf, strained guano water, which will keep red spider in check, and support the Vines. Allow plenty of foliage, as the extension is better than the close-stopping system, always provided that every leaf is fully exposed to light. Ventilation and the application of moisture to all houses at work must have daily attention, increasing or reducing these essentials according to the state of the weather. Disbudding must commence when the bunches are visible, retaining those growths that are the most promising. One shoot is sufficient on each spur, unless the spurs are a great distance apart, so that there is room for a duplicate, which, however, should not be allowed to carry fruit; the present and future crops will be all the better of the extra foliage. Keep the shoots tied down as they advance, being careful not to bring them down too sharply or they may snap off at the junction with the spur. Renew the fermenting material upon the outside borders, maintaining the temperature at about 80°. Vines swelling their fruit will be much benefited by liquid manure applied to the inside borders.

Peaches and Nectarines.—In the earliest house syringing will be required morning and afternoon to keep red spider in check. See that the outside border is well protected against the cold, and water the inside border with liquid manure, which will much assist the swelling of the fruit, especially in the case of weakly trees long subjected to repeated forcing. Vigorous trees will not require any stimulants, excessive vigour being unfavourable to the fruit safely passing the stoning process. When the fruit is of the size of small marbles thinning may be commenced; but remove a few fruits only at a time, removing first those that are badly placed. Disbudding must be followed up, taking care to leave a shoot at the base of each bearing shoot and another at its extremity, or at least level with the fruit. The shoots retained for supporting the fruit should be stopped at the second or third leaf, but the basal shoots must be trained to take the place of those now bearing fruit. Shoots upon extensions must be left at 12 to 15 inches distance apart to form the bearing shoots of the future. Continue impregnating the blossoms in the second early house by gently distributing the pollen by shaking the trellis, or going over each flower with a camel-hair brush. In the house started early in the year syringing must cease when the blossoms show colour. Maintain, however, a good moisture by damping every available surface two or three times a day as the weather may dictate, avoiding a close stagnant atmosphere. If the blossoms are very thick thin them by running the hand downwards on the under side of the shoots, which will strengthen the remainder, enabling them to set better. Admit air freely to late houses so as to retard the blossoming to a late period, especially in the case of unheated houses, which are liable to have the blossom injured by severe spring frosts; the later the trees blossom in such houses the better. See that the borders have water if needed, applying liquid manure to weakly trees.

FLOWER GARDEN.

Complete the arrangements for the summer bedding as soon as possible, as it is very annoying at planting time to find that the particular plants required have not been propagated in sufficient quantity. In the case of the beds and borders being at liberty, take advantage of the first open weather to plant edgings and groundwork of such hardy plants as Ajuga reptans rubra, Antennaria tomentosa, Arabis alpina variegata aurea, Cerastium tomentosum; Sedums lividum, glaucum, acre elegans, and corsicum; Saxifragas Aizoon, ceratophylla, cordifolia, hirta, and hypnoides; and dwarf and variegated Thymes, Stachys lanata, &c., which will save time, and the plants are all the better for being established early. Pansies and Violas plant in their summer quarters when the state of the ground admits; these plants delighting in rather stiff, rich, moist loam, failing which manure liberally. The Violas if not had in sufficient quantity may be supplemented by seed sown now in boxes placed in gentle heat. When the seedlings appear remove the boxes to a cold frame. The plants if pricked out, kept near the glass, and well ventilated, will be strong by bedding-out time. Blue Bell, Royal Blue, Mulberry, Crown Jewel, Corisande, Lutea Major, and Vestal come fairly true from seed. These plants do remarkably well in the northern parts of the kingdom. Herbaceous Lobelias have almost gone out of fashion, yet for moist situations they are very fine. The roots may now be divided and placed in gentle heat to start them, afterwards hardening the plants off. Cannas may also be started in heat, subsequently dividing them, as the varieties cannot be depended on to come true from seed. Calceolarias which have been wintered in frames should have every other plant and row removed before the plants become crowded. Lift them carefully and transplant in other frames, affording them plenty of room. When they are established pinch-out the tops so as to keep the plants dwarf and well branched, fumigating if they are infested with aphis, admitting air abundantly when the weather is mild, protecting only from frost. Gnaphalium lanatum when kept closely pinched is one of the finest groundwork plants for associating with such dark-leaved plants as Iresine, Coleus, &c., and if the rooted cuttings are transplanted in a cold frame very much better plants will be had than by growing them in heat. This Gnaphalium is about as hardy as Calceolarias. Whenever cuttings are to be obtained of Alternantheras, Coleuses, Iresines, &c., insert them without delay. Hollyhocks raised from seed sown now in gentle heat will flower in late summer. If Lobelia speciosa is raised from seed sow at once in heat so as to have the plants strong by bedding time. Pot-off as opportunity offers autumn-struck Pelargoniums, Ageratums, Abutilons, Heliotropes, &c., inserting cuttings forthwith of any of which the stock is likely to be short. Place in heat roots of choice varieties of Dahlias, plunging them in a bed of old leaves, tan, or cocoa refuse, in which the young shoots root freely; or when the shoots are a few inches high they can be taken off with a heel, potted in small pots, and rooted in gentle heat.

If seeds of subtropical plants have not been sown lose no time in sowing such as Acacia lophantha, Cineraria maritima, Centaurea, Eucalyptus, Ferdinandias, Melianthuses, Solanums, Wigandias, &c., so as to afford time for raising strong plants. Chilian Beet, Ricinus, Zeas, and Amaranthus, with other plants of quick growth, should not be sown until early April, as the plants become checked and stunted if raised too early. Sow a few Sweet Peas, also Mignonette in pots for early flowering, keeping the plants near the glass, and when well grown and hardened-off plant them outdoors. Abutilons Thompsoni and marmoratum placed in heat will soon afford a quantity of cuttings. Tricolor and other choice variegated Pelargoniums if afforded gentle warmth will soon yield cuttings, and if the shoots are partly severed below a joint they will in ten days or so form a callus, after which sever them entirely and insert singly in small pots, placing them near the glass in gentle heat. Verbena venosa is a fine plant though old, seed sown now in gentle heat will afford good plants by May; and to have strong flowering plants of the grand blue Salvia patens sow at once in heat. Old roots of it and the Verbena may now be divided. Liliums may now be planted, they are very effective in shrubbery borders or in the spaces among Rhododendrons. Plant the bulbs 6 inches deep, placing a handful of sharp sand over each. Plant Ranunculuses and Anemones in deep rich soil with a pinch of sand around them. Sow seed of Anemones for autumn flowering. Roses and other climbers on walls should be pruned, thinning out the old worn-out wood, training-in the well-ripened growth, but not too thickly. Standard or dwarf Roses required to bloom early should now be pruned, but defer the general pruning until a later period. The severe weather has made sad havoc of the standards in some localities, the loss being very serious; dwarfs, however, from being protected by the snow have sustained little injury.

Borders containing herbaceous plants should have a dressing of rich compost if not already done, and when the ground is in working order it should be neatly forked over, taking advantage at the time to reduce such plants as have become too large, and to increase by division those more choice or desirable. Gladioluses for an early bloom should be planted about 4 inches deep, placing over each corm some sharp sand. See that Tulips, &c., have not been upheaved by the frost; press the soil firmly about them. The same remarks apply to Pansies and Pinks, which should be mulched with cocoa refuse for affording protection from frost and for imparting a neat appearance to the beds.

Lawns.—Such weeds as Daisies, Crowfoot, Plantain, &c., should be removed, there being no better way than grubbing them out by hand; a piece of iron about an inch wide and an eighth of an inch thick, sharpened and with a swan-neck bend so as to prize the weeds out by the roots, is a suitable implement for the purpose. If the lawn is at all mossy a top-dressing of rich compost, such as vegetable refuse reduced to soil, with a sixth of lime added, is a good application; twenty cartloads per acre of this compost may be supplied to a poor lawn, twelve loads being a fair average dressing. If this be objected to on the score of appearance, soot, wood ashes, fresh slaked lime, and bone dust in equal proportions may be added to a quantity equal to the whole of vegetable refuse; the mixture being sown broadcast at the rate of 60 bushels per acre will effect a great improvement in the grass without being an eyesore. Wood ashes are even more effectual for destroying moss than lime. A good dressing will in most instances remove the moss and encourage the growth of grass, and especially of clover. The texture of grass is greatly improved by sweeping and rolling, and consequently both the broom and roller should be frequently called into requisition.

TRADE CATALOGUES RECEIVED.

Ewing & Co., Eaton, Norwich.—*List of New Roses.*

Edmondson Brothers, 10, Dame Street, Dublin.—*Catalogue of Vegetable and Flower Seeds, &c.*

Ormiston & Renwick, Melrose.—*Catalogue of Vegetable, Flower, and Farm Seeds.*

Walter Ford, Pamber, Basingstoke.—*List of Flower and Vegetable Seeds, Potatoes, &c.*

Stephen Brown, Weston-super-Mare.—*Catalogue of Seeds and Garden Requisites.*

James Yates, Stockport.—*Catalogue of Seeds, Gladioli, &c.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

TUBEROUS BEGONIAS (*W. B.*).—If seed is sown now in a heated frame or stove, and the seedlings are carefully attended to and well cultivated, they will form attractive flowering plants during the ensuing summer.

GARDENER LEAVING (*Crux*).—We cannot print your letter, but we quite sympathise with you in the ungentlemanly manner in which you have been treated.

SEVERE FROSTS (*L. J.*).—The frost during what is known as "Murphy's" winter began to be severe on January 7th, 1838, and continued until February 20th. Gardening operations were resumed on the 27th of that month. We are unable to answer your other question.

PROPAGATING CENTAUREA RAGUSINA (*H. W. P.*).—Cuttings will strike readily now if due care is exercised in their management. The cuttings should be in a healthy growing state, and to have them in that condition it is sometimes necessary to place the stock plants in gentle heat for a week or two. We insert each cutting in a thumb-pot in moist, firm, sandy soil, and plunge the pots in a temperature of about 80°, the top heat being 60° to 70°. We keep the soil moist but do not sprinkle the foliage, and afford only sufficient shade to prevent the cuttings flagging. Somewhat more shade is required than for Geraniums, and less than is necessary for Verbenas and similar softwooded plants. Immediately the cuttings have rooted they must be removed into a cooler and lighter house, and eventually be shifted into larger pots, when useful plants will be produced by the middle of May. Cerastiums may be raised from seed as you propose, but the plants will be too green to be effective during the first season. Cuttings, or rather long slips, inserted in March in lines or panels where required, root readily and grow into a dense silvery mass.

FERNS FOR UNHEATED FERNERY (*Clare Subscriber*).—Besides the choice species and varieties of British Ferns the following would probably succeed in your very mild climate:—Cyathea dealbata, Dicksonia antarctica and Blechnum corcovadense as Tree Ferns; also such exotic Ferns as Adiantums pedatum, venustum, cuneatum, formosum, reniforme, colpodes, and tinctum; Aspleniums eburneum, biforme, bulbiferum, dimorphum, and reclinatum; Cyrtomium falcatum, and Lastreas intermedia, marginalis, and many others; Nephrolepis exaltatum and tuberosum; Onychium japonicum, Goniophlebium appendiculatum, Pteris argyrea, cretica albo-lineata, tremula, and umbrosa; several Polypodiums, and such Selaginellas for margins as denticulatum, also Wildenovii and umbrosum. We know also that the climbing Fern Lygodium scandens which is generally grown in a stove will succeed if planted out in your cool fernery, as also will the beautiful new Fern Lomaria discolor bipinnatifida. Those and many others are worthy of trial, but as you do not state the number you require we can only give you a suggestive list.

DATURA STRAMONIUM (*A Lancashire Reader*).—We do not know where this plant is cultivated largely in this country. There is no doubt it might be cultivated in Lancashire, as it is sometimes found growing wild on rubbish heaps, dunghills, &c., in different parts of this country. It is an annual, and is readily raised from seed sown in the open garden in early spring.

CLEANING GLASS (*H. G. M.*).—It is often a work of no small difficulty to clean the laps of the glass in frame lights and the roofs of houses, especially when the glazing is close and the laps considerable. Where the squares are large they will yield sufficiently for a very small wedge being inserted in the laps, and then by inverting the frame lights and syringing violently with warm, not soapy, water much of the dirt may be removed. Laps are often unnecessarily large. Many houses and frames are glazed without laps, and on tolerably steep roofs the practice answers well. Where the frames are very flat the system might not be so satisfactory.

HELLEBORES IN POTS (*H. F.*).—Plunge the pots over their rims in a partially shaded position in your garden and water the plants liberally during dry weather, giving them weak liquid manure occasionally when they are in full growth. The best position that we have found for the plants is a border having an easterly aspect. The morning sun and afternoon shade appear to suit them admirably. The foliage should be well sprinkled, and the ground surrounding the plants be made moist during the evenings of sultry days in summer. We will endeavour to obtain information respecting painting with creosote.

RIPENING PEARS (*Comlin Castle*).—Many Pears are greatly improved in flavour by being ripened in heat, and the practice you have adopted successfully of ripening the fruit in a propagating house is to be recommended for ripening many sorts of late Pears. The specimen was so much bruised by having been placed without any packing in a tin box as to render it impossible for anyone to identify the variety.

REPLACING OLD VINES (*A Constant Reader*).—The past three seasons have been unfavourable to the ripening of Grapes in cool vineries. The planting of Vines inside the house to ultimately take the place of the old Vines is good so far as it goes, but we should not restrict the roots to the inside border, or only until such time as the old Vines are dispensed with; then make openings in the front wall, leaving pillars at every 2 or 2½ feet for the support of the wall plate, which may be further strengthened by arching the openings, a new border being made outside. Black Hamburgh is the most suitable variety to plant. Foster's Seedling and Buckland Sweetwater would be suitable whites. It will answer to cut off the old spurs to make room for the young canes as required.

CAMELLIAS CASTING THEIR BUDS (*J. C.*).—The cause of the buds being cast is owing to the free growth of the plants, the wood not being well ripened. The only remedy is to lessen the supply of water, giving no more than to maintain steady growth. The new soil and liberal shift have induced strong growth, which only needs thoroughly ripening for the plants to flower satisfactorily. Admit air more freely, and so lessen the atmospheric moisture. The door is not at fault.

DRAININGS OF STABLES (*C., Louth*).—Consisting of little beyond urine the liquid would, we fear, be too strong for the rootlets of Peach and Nectarine trees in pots, it being safer to form liquid manure from solid matter for such purposes. The tank water diluted with six times its volume of water may be employed on Vine borders. Its offensive smell is sufficient to preclude its employment for sprinkling inside the vinery when closing the house. Sulphate of iron in the proportion of 7 lbs. to every 100 lbs. of urine prevents the escape of ammonia during putrefaction. A little gypsum mixed with the liquid will add to its value as manure. It is not suitable for watering greenhouse plants. For kitchen garden crops it is very valuable diluted with three times the quantity of water, pouring it between the rows of growing crops.

HEATING GREENHOUSE (*W. P. W.*).—A slow-combustion boiler would best meet your requirements, as you do not appear to have a shed wherein to set a saddle boiler, a fact which you did not state before, and the other from requiring no brickwork could be fixed by any handy person. Write stating particulars of what you require to those advertising, any of which will furnish an estimate of material for heating your house satisfactorily, and will send instructions for setting, &c. It will not be necessary to carry the smoke pipe to the height of the building adjoining, it will suffice to take it clear of the greenhouse. The hot-water pipes will do at the back of the house, but are much better at the front.

PLANTING VINES (*Novice*).—Cut the canes back so that when planted they will reach to the bottom of the rafter or trellis. They must be pruned without delay or the canes will bleed, to prevent which dress the cuts with "knotting" as used by painters. In planting the Vines the roots should be disentangled and laid out straight in the border. The planting would be best deferred until the shoots are an inch or two long, giving a good watering after planting with tepid water (90°), and mulching over the roots with short litter; shade the Vines for a few days after they are planted if the sun be powerful, and sprinkle them lightly two or three times a day, keeping the house rather close and warm until they are established.

RENOVATING LAWN (*J. H. C.*).—It would be desirable to afford a dressing of thoroughly decayed manure. That from spent hotbeds is suitable, applying it as a top-dressing now, and distributing it evenly over the surface, leaving it on until the early part of April, then rake it well with an iron rake, removing the rough parts, and sow with grass seeds. 12 lbs. of Cynosurus cristatus, 8 lbs. of Festuca duriuscula, 4 lbs. of Poa nemoralis sempervirens, 8 lbs. of Trifolium repens, and 4 lbs. of Trifolium minus form a good renovating mixture for very bare lawns. The quantities named are for one acre, therefore take a proportionate part of each suitable to your case. Rake lightly after sowing, which should be done evenly, and roll so as to make all firm. See note on lawns in "Work for the Week" of this day's issue.

ZONAL PELARGONIUMS (*Scrutator*).—Good varieties are Amazon, Irene Seraph, Sir Charles Napier, Antigone, Heather Bell, Guinea, President McMahon, Lucy Bosworth, Mrs. Turner, Sybil Holden, New Life, and White Clipper. Double-flowered: Dolabel, Mont Blanc, Charles Vogt, Emily Laxton, Wonderful, and Madame Lemoine. By all means have some Fuchsias for your greenhouse—Earl of Beaconsfield, Covent Garden White, Cannell's Gem, Beauty of Swanley, Mr. James Huntley, War Eagle, Royal Standard, Mrs. Huntley, single; and Miss Lucy Finnis, Sir Garnet Wolseley, Champion of the World, and White Unique, double. All the Liliums you name are suitable for pot culture. A Maréchal Niel Rose would succeed against the back wall provided it be not shaded.

NAMES OF FRUITS (*F. McLennan*). — Beurré Diel. (*W. H.*).— Winter Greening.

NAMES OF PLANTS (*J. R., Nantwich*).—1, Asplenium flaccidum; 2, Begonia argyrostigma; 3, Maranta zebrina; 4, Polypodium phymatodes; 5, Specimen imperfect. (*P. L., Colchester.*)—Cœlogyne flaccida. (*Captain Kelly*).—Phaius grandiflorus.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

IRRIGATION OF GRASS LAND.

THIS must be described as one of the most economical ways of manuring and rendering productive pasture lands of various kinds throughout the kingdom. It is also a very ancient method, for tradition informs us that irrigation has been practised from a very remote period in various parts of the world. Our opportunities have, therefore, been very great of referring to modes of irrigation in all past times with a view of improving the modes, whereby we may at present learn to irrigate a considerable portion of the pasture land not yet under the system, if we choose to study the matter and apply the opportunities we have of using springs, rivers, and brooks, and turn their waters to account by flooding them over the grass lands. The water from chalk hills, from the stone brash hills, and the gravel and mixed soils, is to be obtained in varying proportions for irrigation in almost every county in the kingdom, including Ireland and Scotland. There are very large tracts of land, which are now poor and comparatively worthless pasture, which may be rendered much more productive by the application of waters at hand ready for use. We find the springs from chalk soils issue in most instances from the foot of the hills, and this has to a great extent been the cause of our finding some of the finest and most fertile water meadows in the valleys between the chalk hills in almost every county where chalk soils are found. The analysis of water springs from the chalk formation of some hills in Surrey, as given by Professor Way, shows carbonate of lime, carbonate of magnesia, sulphate of soda, sulphate of potash, and common salt, besides silica. We can, therefore, hardly ascribe to the solid matters of this water entirely the beneficial effects they produce in irrigation; still that they do yield organic food to the grasses of the water meadows of the best kinds is evident from the most valuable meadows of the kingdom being so situated do avail themselves of it; but the farmers of these meadows, however, look beyond the value of spring water, and reap further advantages from the flooding rains which at certain seasons send down into the rivers rich mineral deposits from the calcareous hill.

Referring to spring water from the stone formations we find its issues are at various altitudes on the hill sides, and it is therefore available in a very different way from the chalk springs which issue only in the valleys. Of the springs which arise on the hill sides, and often in some of the sweetest and best herbaged pastures, we have instances, notably in Devonshire, Gloucestershire, and other counties; and where used upon these pastures upon the principle of catch meadows, the water is so economised that not a drop need be lost. Water also issuing from gravels and mixed soils issues at various points, and are capable of being utilised for catch-meadow purposes of irrigation, the distinctive difference, however, being that spring water is dependent only for its fertilising value upon two points—the mineral matters and the moisture which it conveys to the land before its distribution; it is well, therefore, to have spring water analysed before going to the expense of the formation of catch meadows.

Upon home farms throughout the kingdom there are many opportunities for irrigation, and there are many impediments; for instance, in some cases we cannot pen water to throw it on to another and higher level without injury to the property of others or a portion of our own by the back water; but this matter, however, is often guess work unless the levels are properly taken to know the exact penning depth required to carry the water to a given and distant point. We therefore recommend in some instances a competent surveyor should be employed to plan and estimate any work of irrigation which has the least doubtful aspect of success. It has for a long time been our opinion that water may be lifted by steam power from rivers or brooks for the purposes of ordinary or temporary irrigation, but it often happens that the rights of mill-owners and others oppose a bar to its extended and profitable employment. But the case we desire to illustrate is this: Suppose we have to raise the water from a stream to the highest part of an adjoining field—say 10 feet above the level of the field, an ordinary engine would by the consumption of 1 cwt. of coals raise to this height something like 700 tons of water, an amount of liquid equal to an inch depth on seven acres of land, or an average fortnight's fall of rain in the southern and midland counties of England. The amount of water which an ordinary agricultural engine is thus capable of raising is, we think, much more considerable than is generally supposed; not, however, having tried the experiment we can only offer the idea to our readers for consideration. The same idea may be carried out to advantage probably in some cases where there is grass land lying below the level of the home-farm buildings, whereon we have often seen tanks for the reception of liquid manure, and in our own business we have often laid out pasture land for the reception of liquid manure upon the catch-meadow system; but the chief difficulty we have had to encounter has been the deficiency of rain water to connect with the manure, and to enable it to flow of its own gravity to any considerable distance. In some cases this may be overcome, and particularly where steam power for other purposes forms part of the available machinery upon the farm. The action of this flooding would resemble very much the effects of a heavy thunder shower, which we have often seen do so much towards distributing the manure upon the land we have laid out.

In laying out grass land for irrigation we propose to consider the subject under two separate headings; first the making of water meadows, and secondly the making of catch meadows. In making water meadows we shall call it for distinction the ridge-and-furrow or bedwork system. The cost and estimate, although it varies very much according to circumstances, the levelest and largest areas being done at about £14 per acre, the cost of hatches, bridges over the main carriers, &c., if done with brickwork in a very substantial manner would raise the cost much higher. In most districts the soil usually given up for irrigation is very various even in parts of the same valley, some being alluvial, some gravel, some peat, and sometimes clay is met with. In most cases where irrigation has not been laid out it is found unlevel, or otherwise flat with decided variations of soil. All these variations will require our special consideration. When any of the above-named soils are too wet at bottom it may arise from two causes—either by land springs from the hills near, or from birds-eye springs or quicksands where the water rises perpendicularly from a considerable depth. In the first case, and which is certainly a very common one, the plan is to make a deep cutting at the foot of the higher land until the water is reached, which flows from it into the fields below, following generally a stratum of gravel or other loose soil. No matter if you have to cut the drain of severance as deep as 10 feet or more, it must be done, and be sure that there is no lower stratum passing water into the lowlands, then put in pipe tiles of such a size as will be safe to carry the whole volume of water. In laying the tiles take care the bottom or last spit is cut lowest on one side, the tiles being laid on the lowest side. They will then not remove in filling-in the earth, every particle of which will press and keep them in position.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Ploughing is still in arrears, and must be resumed immediately the land is sufficiently dry for being worked. There is yet carting work to be done, as there is all the year round. Where chalk is required to be applied to the home farm a quantity may be fetched and laid out or taken to heap; or, in case it will be required for drilling instead of ashes with turnips, it may be placed in some covered place to keep dry and be screened, and prepared for drilling at all times when the labourers have nothing better to do. The horses have in many cases when employed in carting in frosty weather been obliged to have rough nails in their shoes to give them a fair footing when the roads are partially covered with frozen snow or ice. It is a continued expense, and it would be well if the roughing of shoes could be dispensed with entirely; and this just raises a question—How far the shoeing of horses is requisite at all when employed, as they are chiefly, in tillage work upon the land. It is, however, unfortunately the fact that the feet of farm horses are often found in a very defective state, arising from various causes, most of which may be avoided if the horses are properly looked to when they are young and shod by men who understand the veterinary requirements of the matter, and when the stables in which the horses live are kept free from hard floors, &c. We hope at a future time to return to the subject of the management of the feet of horses engaged in farm work under a special heading.

Hand Labour.—The manual labour of the farm is a principal item for attention at present. All kinds of seeds should now be purchased which require early sowing, and it should be ascertained how much, if any, may be in store ready for use. The first open weather which occurs will be the best time for sowing cabbage seeds, &c., for affording plants for transplanting in the fields. The seed should be sown in beds in a large garden or sheltered border or field of any length, about 4 or 5 feet wide, so that the women may easily handweed or pull plants for use without treading and injuring the remaining plants. An ounce and a half of seed will probably furnish plants sufficient for an acre of land if the fly does not destroy them in the first leaf. This is really why early sowing is so desirable, because when the sun is strong upon the young plants the fly is pretty sure to damage if not destroy them. The sort for early feeding we recommend is the Early Oxheart, as they head very quickly and throw but few outside leaves, and therefore but little goes to waste. The Champion Drumhead, the largest and heaviest known variety, comes next, and then the Drumhead Savoy. The thousand-headed kale is a valuable plant, particularly for planting late, when there is not time for cabbages to head properly. The kale is very hardy, and if the plants are laid along the furrow and covered by the plough they are sure to grow in the driest of weather if the stems are buried deep enough.

In selecting barley for seed be sure and take the best pedigree barley which can be obtained, and a limited quantity direct from Capt. Hallet of Sussex will be the surest way to begin with the right sort, for we consider that equal importance should be attached to pedigree and selected grains as in selected pedigree cattle or horses. The oats also may be taken up for seed in the some manner, and we particularly advise the white Canadian pedigree oats as being specially adapted for sowing instead of barley upon some soils which have been trodden heavily by sheep, as this variety comes very early, crops well. We have grown splendid crops of Greystone turnips afterwards by ploughing and sowing between the shocks after the oats every day as fast as the crop is cut and tied.

Ewes and lambs will require unremitting attention; full directions upon this matter will be found in this Journal, February 7th, 1878, page 116.

The feeding of the fatting pigs which are now just being finished off and finally fed for bacon, should be looked to in this way: Do not give too much of the barleymeal, but give a fair mixture of beanmeal also. We notice that managers of the bacon factories in some cases complain that the animals are sent in too fat, and advise that some breed of pigs yielding more lean meat than the Berkshires should be obtained. But this is a great mistake, for if Berkshires do not yield a good portion of lean the fault is in the feeding and not in the breeding. Age and flesh-forming materials as food are the only means to make the best bacon, except that in breeding a cross with the large Yorkshire with the Berks breed may give a little more lean at an earlier age; but, having these breeds, the chief point lies in the feeding. Larch poles and timber for farm use of the fir tribes should be cut as soon as the bark will strip off clean. This is really the important point, for stripped poles used whole will last for a long time; the unctuous and resinous sap dries on the poles, and makes them very tough and enduring. If the bark is allowed to remain even partially a small worm is engendered, which eats into the wood and makes it very perishable.

FAMOUS POULTRY YARDS.—No. 3.

PATSHULL PARK (THE COUNTESS OF DARTMOUTH).

(*Continued from page 90.*)

We passed on across the Park Road to the rest of the poultry yards at Wildecot. On one side of the road are some neat cottages

and a range of farm buildings with snug old yards surrounded by woods; these yards have been adapted to poultry purposes, and many are the improvements we found since our last visit. To begin with, there are four good-sized yards where formerly there was one unnecessarily large. In the first of these were a whole flock of Dark Dorking hens, fine rich-coloured birds; then Light Brahmas, among them a lovely pullet; then Black Hamburghs; and last, but by no means least, Silver Poland hens. There is no breed which can exactly be called the *spécialité* of Patshull, where so many are kept in excellence; but we think that the Silver Polands have won more prizes than any others. The two most famous hens were at Birmingham, but eight or ten at home were as good as any we ever saw. The manager caught two or three for us to handle. One was magnificent in crest, another singularly beautiful in her lacing, which had an unusual gloss. Further on came the run of the famous Silver Sebrights, but they too were at the great Show.

We next came to a large old-fashioned yard of irregular shape—a perfect home for poultry; it is partially surrounded by sheds and buildings and partially open to woods, through which the birds range at complete liberty. Here were more Dark Dorkings, among them fine rose-combed chickens again. On one side of the yard are some long lean-to sheds. One of these is wired in front and devoted to Pigeons. There were various breeds in it, among them some very fair Antwerps; but the Pigeons at Patshull have not yet been brought to the standard of the poultry. In another of these sheds was a real *rara avis*—a pure Black Silky hen; in all points, save colour, exactly like a good White one! On another side of the yard are more substantial buildings, and among them several poultry rooms, most necessary appendages of a large establishment where foods are mixed, sickly birds tended near a fire, and where there are a series of pens for the reviewing and training of show birds. Many a grand bird to all appearance in the yard will not at first look well in a pen, while an inferior one which has been used to it will stand up and do itself more than justice. It is of great use to compare birds in such pens as they will be judged in; timid or wild birds will soon become confident and tame. Space fails us to relate how many enviable places and appliances we saw here. In a shed hard by the coops were stored up and long rows of sitting boxes admirably contrived, so that each hen is separately confined, yet on the ground. Here our pleasant morning ended.

The afternoon expedition was not less interesting. Further from the house on the same side as Wildecot stretches "the High Park." This is the deer park, and a most beautiful one. The ground first dips down, while the drive twists through a wood, then for some distance it is level or nearly so and open, and then gradually rises towards a long hill covered with fern and fine old trees. There is that peculiar beauty about this high ground that specially belongs to real forest land, which it evidently must have been centuries ago, and the views of the house and lake in the distance from a broad grassy side along the hill's edge are extremely fine. There is a herd of fallow deer, which originally came from the forest of Arden. They are all dark, for if a light fawn makes its appearance it is killed as being degenerate. But we must return to the poultry.

In a charming and picturesque corner of the High Park is another immense poultry establishment. Its situation is not easy to describe. On the left, as we go up the grassy slopes of the park, is a ravine with woods on either side; a stream comes down, and by various dams a series of pools are made, overhung by trees. At the top of the valley was formerly a lake which fed the stream, but some years ago the bank gave way, and the lake is now dry. Possibly our readers may remember seeing in the newspapers accounts of the terrible damage done by the catastrophe, though fortunately there was much exaggeration in them. On a little lower level than this bank, but safely to the side of the stream's course, is the great poultry yard; it is another old-fashioned yard adapted to modern requirements. A lady of the owner's family planned it long ago, and in its day it must have been almost unique. As we come up to it four yards are first reached on the right; the hill has apparently been quarried at some time, so that some of the houses for these yards are absolutely made in a high rocky bank, and very snug they look. They contained Silver-Grey Dorkings, Dark Brahmas, Partridge Cochins, and Silver Poland cockerels. Beyond them the original poultry yard is reached. It is such a one as is often seen near a game-keeper's cottage, but larger and better. On three sides are buildings, and on the fourth a continuation of the rocky bank, up which steps lead to a higher level of the park. The buildings are all of the most excellent and substantial construction. Their tenants are indeed worthy of them; we never saw before so grand and imposing an array of Turkeys together; there were at least sixty all in the most glossy condition and ready for Christmas, some Dark Bronze Cambridge, some quite black Norfolk, then there were Dorkings innumerable, fat Rouen Ducks, and fatter Geese. We went into house after house, some of them lofty and airy with swinging perches for Turkeys, others fitted for sitting hens, others lower for fatting Ducks. Upstairs we looked with curious eyes at beautiful Pigeon lofts, topped by a pretty lantern, and tenanted by Antwerps. Lastly we came to the place where most of the chickens are reared; where a broad stream once came down from the lake above are now dry sheltered woody banks, are in spring cooped hundreds of chickens. A more perfect place could scarcely be found; protected from cold winds by the high woods behind, the birds must in early spring get every ray of sun, and as the weather becomes hotter be shaded by the foliage, while they always find plenty of insect and vegetable food.

There are other minor poultry colonies at Patshull, among them a quantity of Cuckoo Dorkings at a lodge, but we have only tried to describe the greater establishments, and to give our readers some idea of their grandeur. After seeing these we asked the manager if there were not one thousand birds? "Far more than that" was his reply. We have always been strong advocates of poultry being made thoroughly useful and not kept merely as fancy stock, hence the great pleasure and interest with which we went through all Lady Dartmouth's yards. We end as we began, by counselling those of our readers who have like opportunities, even though they be not so exceptionally great, to give some attention to their poultry. Were the birds generally reared on such a scale we should not hear of Turkeys being sold in London for two and three guineas each, or of our average importation of foreign eggs having reached almost two millions a day.—C.

POULTRY EXPERIENCES.

THE report of Mr. F. C. Taylor must prove very interesting to those of your readers who are trying to solve the problem of keeping and rearing poultry and of obtaining eggs at a moderate cost in a confined space. The figures of your correspondent prove even more satisfactory when dissected thus:—

LIVE STOCK ACCOUNT.

Dr.	£	s.	d.	*Cr.*	£	s.	d.
To Original cost of 7 birds ..	1	8	0	By Birds killed	2	5	0
" Brahma eggs purchased..	0	10	6	" Birds sold	0	11	0
" Two broody hens	0	7	0	" Actual cost of present 22 birds	0	17	6
" Four hens purchased	0	8	0				
" Depreciation of buildings	1	0	0				
	£3	13	6		£3	13	6

CURRENT ACCOUNT.

Dr.	£	s.	d.	*Cr.*	£	s.	d.
To Cost of food	7	12	11	By Eggs sold at 9 for 1*s.*	1	10	0
" Balance, being profit	0	1	5	" Eggs used at 1*d.* each	5	14	4
				" Manure	0	10	0
	£7	14	4		£7	14	4

To make the whole statement complete there should be a

DEAD STOCK ACCOUNT, 1878.

	£	s.	d.		£	s.	d.
Cost of runs, say	9	0	0	Depreciation 10 per cent.	1	0	0
Utensils and sundries	1	0	0	Valuation of runs for 1879 and utensils.....	9	0	0
	£10	0	0		£10	0	0

DEAD STOCK ACCOUNT, 1879.

	£	s.	d.
January 1st.—Value of runs and utensils.....	9	0	0

We are, of course, obliged to make out an imaginary dead stock account in this case, but if your correspondent would give an account of the cost of his sheds and runs we should be able to derive a still more profitable lesson from his experience.

Possibly the runs may not be in a town. Our own experience last season with a very expensive and generous system of feeding in a town run was that our eggs cost us a fraction over 1½*d.* each, but as a good number were sold in the winter at 3*d.* each and more we were enabled to write off £2 10*s.* from the cost of runs from the egg profits alone. Our live stock account was much less favourable than Mr. F. C. Taylor's, as our stock of twenty-six birds, of which nineteen were pullets, cost actually 3*s.* 6*d.* each, instead of less than 1*s.* each as above. *Experientia docet.* We are doing better during the current year, ending in our case in April.

I venture to suggest that the records of individual experience would prove more valuable if correspondents would simply show—

1, At what cost runs can be built and maintained efficiently.

2, At what expense a stock of fowls can be maintained year by year, with a view to the production of eggs in winter.

3, At what cost eggs can be produced.

All differences in estimates of values either of fowls or eggs would be done away with, and the results arrived at might induce many others to keep fowls.—COL. B.

CANARY TREATMENT.—No. 1.

THE period for commencing the breeding of Canaries being close at hand, all necessary preparation should be made in the way of cleansing the breeding partitions and cages, and providing nest boxes or baskets and the best-adapted building materials. From an old treatise we take the following extracts respecting what materials are necessary for making the Canary birds' nests:—

"There are seven or eight several sorts of things commonly

given to Canary birds to make their nests, as new or common deer's down or wool, hay, moss, cotton cut small, coarse hemp or flax, soft long hair, &c. Of all these several things only one or two ought to be used for making of the nests, all the rest being very improper as I shall observe. For instance: Cotton cut small as well as flax is apt to cling to their claws, whence it often happens that the sitting hen rising hastily from off her eggs drags the nest after her, and consequently breaks the eggs that are in it, and this may be done without perceiving the cause of it. Then the owner is apt to look upon it as a fault of the cock or the hen, which are suspected to have done it designedly, and yet you see they knew nothing of it. New or common deer's down or wool is not so good for them as is generally imagined, for it puts the sitting hens into such a heat that they often sweat, and when the young ones are hatched they are stifled by it in a few days. Besides that, wool being heated sticks so close to the bodies of the new-hatched birds like a paste that they cannot void their excrement, and thus die with their craws full, so that the cause of their death is not perceived."

The supplying of Canaries with different sorts of nesting materials as the seasons vary—viz., from early spring to midsummer, is an important consideration for good success in the rearing of young broods, for it is reasonable to suppose that when summer weather fairly sets in, nesting material of a cooler or lighter kind should be used in the place of down or wool, which would be more appropriate in the early part of the season —March or April. And as regards nest boxes and baskets, from my own experience I have found the nest box to be more suitable and warmer in cool weather than the basket, which latter I have found to be better adapted in hot weather owing to the open and porous construction of it, especially when the nesting material used be principally fine meadow hay and moss, with a very small addition of hair to complete the finishing touch to the nest. But to continue the writer's remarks. He says:—

"If I were to make use of deer's down it should be only of the new kind, and would only employ it about the first nest, because it is not yet hot weather, when the birds have their first brood; but it should not be given them at their second, third, and fourth laying, to avoid the ill accidents I have mentioned. They must be allowed somewhat sparingly of moss, for when they have much it sometimes happens that the eggs become buried at the bottom of the nest and the moss over them, and then a man is apt to believe the hen has not laid, when at the same time she may have several eggs. The birds must therefore at first have nothing given them but very fine and small hay to make the body of their nest; besides that the hay must be gathered and well dried in the sun some time before they have it, that the strength of it being gone it may not affect their heads. When the nest is almost made there may be given a little portion of moss well dried and a similar quantity of deer's wool, which must be allowed only for the first nest and not for the others, for the reasons above mentioned. There is a sort of fine furry hair which may be had at the brushmakers', and is very proper for these birds. You may take the finest and shake it well to beat out the dust, or if you would do better, wash and dry it in the sun, which will take out all the dust and the scent it naturally has, then strew it about the cage. You will be pleased to see what a charming nest the hen will make. This hair alone without any other thing will serve them to make their nest, and that which has already served in one nest being again washed in boiling water, will be fit for another nest."

We agree with the writer's view of economising the use of nesting material by scalding and washing it for further use when the supply of it is limited. Altogether the extract is practical and of use to fanciers, but being of some length we will continue it in another chapter.—GEO. J. BARNESBY.

VARIETIES.

A MEETING of the Surrey Columbarian Society will be held in the Borough and County Hall, Guildford, this evening (February 13th), at 6.30, to draw up a programme of races for Homers to be held during the summer months, and for the transaction of general business, after which an address will be given by the President of the Society, Mr. O. E. Cresswell, on "Scientific Pigeon-breeding." The Society's next Show will be held on February 25th and 26th. The schedule is before us, and is a very good one with fifty classes. No money prizes will be given, but handsome illuminated prize cards.

—— WE are glad to learn that the first Exhibition of the Isle of Wight Poultry and Pigeon Association held at Ryde on the 5th and 6th inst. was highly successful. Nearly seven hundred pens were exhibited by upwards of 170 exhibitors, including representatives from the counties of Middlesex, Surrey, Sussex, Cornwall, Norwich, Dorchester, Devon, Oxford, Lancaster, Hereford, Leicester, Kent, Bucks, Somerset, and Nottingham. Among the more extensive exhibitors were Messrs. Cucksey & Flicker, Chichester; Mrs. E. M. Damant, Bonchurch Poultry Yard; Mr. F. C. Davis, Avenue, Southampton; Mr. R. Fulton, Doo Lodge, Brockley, London; Mr. Salter, Egrove, Oxford; Mr. Wardle, Belgrave, Leicester; Mr. J. Wingham, High Field, Southampton; Mr. G. Wood, The Grange, Beaconsfield, Bucks; Mrs. J. Woods, High Street, Sandown; Mr. R. Woods, Crown Hill House, Mansfield, Notts. There was also a large number of local competitors. The Show was admirably managed by the Hon. Secretary and a practical managing Committee.

—— A SPEAKER at the great dairy fair lately held in New York observed that in the near future America would furnish England with at least 300 million pounds of cheese per annum, and with a large proportion of the 50 million dollars' worth of butter she now imports yearly from the continent of Europe. Again, when it is considered that exclusive of Great Britain the population of Europe is 250 millions, it is fair to presume that a large market may be created for American dairy products. In 1878 over 128 million pounds of cheese and 25 million pounds of butter have been exported, while within the last twenty years an export of cheese alone is shown of 1168 million pounds, and a total value of exported butter and cheese of 185 million dollars. During the last ten years 885 million pounds of cheese have been shipped abroad.—(*American Cultivator.*)

—— REFERRING to fat cattle shows the *Irish Farmers' Gazette* observes:—"There is a growing disposition manifested to question the benefit derived from shows of fat stock, such as the great English shows, which encourage a system of feeding beyond the period when the animal becomes profitable to the feeder and to the consumer. It is well known that cattle have frequently been taken home by their owners after winning prizes to undergo a further process of cramming for another twelve months, the result being that they are finally brought out so overloaded with fat that practically it is only the tallow chandler and the cook, whose perquisites they help to swell, who are chiefly benefited by them. No doubt the owner enjoys the *eclat* derived from the expressions of wonder or admiration from the crowds which gather round his animal, and he has the satisfaction of seeing his name in print, but that is all he gets in return for an enormous outlay. The chief object of cattle shows is, or ought to be, educational, but when these institutions inculcate lessons incompatible with truly economical management they fail to serve the purpose which led to their establishment. The educational element is superseded by that which is merely sensational, and when such becomes the case exhibitions of any kind lose their value. Monster cattle and monster roots are mistakes; one is a moving mass of tallow affected, as experts assert, with internal disease, the result of overfeeding, whilst the other is a mass of water, rotten in most cases at the core."

—— THE food of hens should be considerably varied. Sometimes for the want of animal food hens will pick the feathers from each other and eat them. This conduct can be avoided by feeding them a few times a week with any kind of waste meat, which can be obtained from meat markets in towns and cities at a trifling expense. Many people would do better to give a part of the waste meat from their tables to their hens rather than dispose of it all to their cat and dog, because by so doing more eggs would be secured from the hens, the cat would be a better mouser, and the dog would not be so cross and irritable.—(*American Cultivator.*)

MODERN BEE MANAGEMENT.—No. 3.

HIVES.

NEXT to a thorough knowledge of the natural history of the honey bee, which I do not intend to enter upon in these papers except where occasion demands, nothing is so important to the bee-keeper as a good hive. As I have in view chiefly those who keep bees for profit I shall say nothing about observatory or ornamental hives of any kind; neither is it my intention to recommend any particular hive among the many now in the market "with all the latest improvements." I purpose at present merely to enumerate the principles on which in my opinion all hives should be selected or constructed, so as to be the most convenient and profitable for the bee-keeper, and at the same time most convenient and comfortable for the bees.

Modern—I might almost say commercial—bee-keeping demands a hive with the following main features:—

1, It must give the bee-keeper great facility in such necessary operations as examining the state of the colony as to food supply or the presence of a queen, egg, or brood, and supplying either when required; uniting stocks of bees, honey, and brood; dividing stocks for increase; preventing or controlling swarming; helping the weak with honey, bees, or brood from the strong; supplying queenless colonies with the means of raising queens; capturing or introducing queens; dislodging the bees from the combs; extracting the honey without destroying the combs; utilising loose pieces of comb, and freely using comb foundation.

2, Of doing any of the above operations without enraging, stupefying, or killing the bees.

3, As of necessity the above requirements can only be met by some form of hive with moveable combs, it must give facility for

ensuring straight combs, and these so uniform that any one comb may take the place of any other in the apiary, and for controlling or preventing the presence of drone or store comb. If I am right it thus appears that our hive must be rectangular in form, for no one will expect us to use circular combs like those built in the cylindrical hives common in some countries.

4, It must be capable of adjustment to the wants of large or small colonies, of expansion in summer so that the bees shall never be crowded out, and contraction before winter to only as many combs as the bees can cover. Our present experience of the rigours of a Canadian winter with an occasional zero temperature will make this latter requirement evident.

5, It must allow of obtaining surplus honey in the comb in the purest and most saleable form, and, I should add, in the greatest possible quantity.

6, It must be thoroughly rain and damp proof, and protected alike against the extremes of heat and cold.

7, It must, nevertheless, be self-ventilating.

8, It must be protected against mice or other vermin, and capable, if required, of being locked against human marauders.

9, It must allow of easily hiving a swarm and of confining one that threatens to abscond, and must have an adjustable entrance.

10, It must be portable and capable of being securely packed for transit by road or rail.

11, Lastly, it should be simple in arrangement and moderate in price.

It is very questionable whether any hive yet invented possesses all the foregoing requirements. Some are deficient in essentials, others redundant with unnecessary fixings. Some are too cheap to afford all that is necessary, others too dear to come within the reach of those who keep bees mainly for profit. Probably those who like myself make their own hives are the best supplied. We can make new hives or improve the old to suit our growing necessities with less expense and much more pleasure than if we had to purchase an entire new set with each vaunted change or improvement.

Without illustrations I may not be able to give a very clear idea of the hive I make for myself, but the following are a few of its details :—Keeping steadily in view the simplicity idea, I use inch boards for the whole outer case—sides, roof, and floor-board. The advantages are, besides substantiality, that when squarely cut no dovetailing is necessary, the tops of the sides can be bevelled to receive a very plain roof similarly bevelled, and thus no laps to throw rain over joints are required, and the substantial floor-board can be driven up inside and securely nailed, requiring no laps, and giving great solidity. As I prefer a fixed floor-board no legs or runners are necessary, a bank of sawdust or turf being my only stand, cool in summer, warm in winter, and once dry always dry, affording at the same time an easy means for weak or heavily laden bees regaining the hive. Here I am aware that I am crossing cherished ideas ; but I must say, that though I have some hives with moveable floor-boards, I very rarely require to move them. Stocks kept in proper condition should be able to keep their floor clean, and I find always do so. For such as may require assistance all that is necessary is to have one spare hive into which the stock may be in a few minutes transferred, and their hive after being cleaned used for the next, and so on. I make the case deep enough to allow about 2 inches of packing space over the frames. These rest on an inner skin of half an inch or three-eighths of an inch wood with dead air space between it and the front and back of the outer case. No doubling is required at the ends, dividing boards of half-inch pine serving to contract the stock and at the same time to afford space for packing the ends with some soft dry material in winter. I use the old-fashioned Woodbury frame, and give space for sixteen of them. This space may, however, be occupied by the usual ten-brood frames and four broad frames filled with sections, and may be contracted at will. Were I not in the practice of working sections in this way I might prefer the taper frame now so commonly used. Of course there is room also for a tier of sections over the frames, and one advantage of such a long hive is that one tier is usually sufficient and is much more convenient than two. An alighting board and porch planted on, with a doorway of 10 or 12 inches protected by slides complete my simplicity hive, unless I mention three or four coats of good paint and a good quilt.—WILLIAM RAITT, *Beecroft, Blairgowrie, N.B.*

BEE EXPERIENCES—CONSUMPTION OF FOOD.

WITH regard to the question as to whether a given quantity of bees eat as much in one hive as when divided I send the following figures respecting the three hives which I have, hoping that they will be of use to your readers. I weighed them last night (Feb. 6th), and found that the

		lbs.				lbs.	
18-inch hive containing about	7½	of bees	had lost in	weight	12½	since	Sept. 19.
16-inch "	"	5	"	"	" 9	"	Sept. 19.
18-inch "	"	7½	"	"	" 7½	"	Oct. 9th.
A small "	"	2½	"	"	" 6½	"	Oct. 9th.

I estimate that the weight lost is the amount of food consumed, for the slight decrease in weight the bees would sustain during the winter would be compensated by the increased weight of the hive and floorboard by exposure to the weather. It will be seen that the 18-inch stock lost 5 lbs. in about three weeks. During this time the bees were very active, I think going after pollen, and also part of the time received some more food. They are all stocks fed last autumn with syrup made principally of loaf sugar. I examined them this morning without using smoke, and found them in good condition. The small hive had five or six seams of bees ; the 16-inch hive six seams ; the 18-inch had about the same, but I could not tell exactly, as the bottoms of the combs they were on were covered over with them. Although the winter has been very severe I have only used covering sufficient to keep off the wet as in summer. Having read Mr. Pettigrew's last letter I shall try a cake made with maize-meal and syrup.—TOM TOWER, *Essex.*

OUR LETTER BOX.

FOWLS DROOPING AND DYING (*W. L.*).—Many fowls have suffered in different ways from the severe and long-continued winter. The result in almost every case is great emaciation and disease of the liver. Such sufferings are not, however, general, but are principally met with where the food has been insufficient or badly chosen. In such a season as that we have just passed through better food is almost as necessary for fowls as warmer clothing is for ourselves. With ground oats or barleymeal slaked for the morning and afternoon meal, some whole corn, maize, or barley mid-day, and such household or kitchen scraps as can be had, your fowls should do well. They want nothing more. To put a stop to the sickness among them give a tablespoonful of castor oil to each patient, and either repeat it at one day's interval or give Bally's pills. Wash their eyes with cold water and vinegar.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. Feb.	9 A.M. Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	IN THE DAY. Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 5	29.973	33.8	31.6	S.S.E.	33.8	39.8	31.3	43.3	31.0	0.098
Th. 6	29.545	45.2	43.9	S.W.	34.0	50.6	38.4	63.8	32.9	0.062
Fri. 7	29.452	46.0	45.7	S.W.	36.1	51.5	42.3	56.0	37.3	0.127
Sat. 8	29.504	44.6	43.3	S.W.	38.1	52.4	42.1	67.8	37.5	0.358
Sun. 9	29.355	49.5	48.4	S.S.W.	39.8	53.8	44.4	60.0	41.3	0.168
Mo. 10	28.996	48.7	48.1	S.	41.8	51.5	48.2	51.7	44.7	0.756
Tu. 11	28.906	47.2	46.0	S.	42.2	51.2	44.9	60.7	41.9	0.035
Means	29.390	45.0	43.9		38.0	50.1	40.9	57.6	38.1	1.604

REMARKS.

5th.—Rather thick but dry morning, with little sunshine at intervals, rain in afternoon and evening.

6th.—Warm spring-like morning, with little sunshine; showery and squally between 1 and 3 P.M.; fine clear moonlight evening.

7th.—Windy during night; warm damp morning with slight rain ; finer in afternoon, and windy.

8th.—Fine, warm, sunny day ; rain after 7.30 P.M.

9th.—Dull cloudy morning ; finer in the middle of the day. Rain commenced 3 P.M. and continued rest of the day.

10th.—Fine morning at 7 A.M. ; thick and dark by 8 A.M. with rain, which continued till 3 P.M., when the sky became clearer and weather fine ; slight rain again in evening and squally. [cloudy evening.

11th.—Showery with intervals of fine weather, bright sunshine at 4 P.M. ; Warm, relaxing, dull, and damp, with high wind at times.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 12.

THE supply of good late Apples is now small, consisting of Wellingtons, Nobs, and Northern Greenings, good samples of American fruit being quite off the market. Late Grapes are in demand, prices for first-rate samples ruling high. Trade slightly improved.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples	½ sieve	2	0	to 6	0	Melons	each	0	0	to 0	0
Apricots	dozen	0	0	0	0	Nectarines	dozen	0	0	0	0
Chestnuts	bushel	12	0	16	0	Oranges	₩ 100	4	0	10	0
Figs	dozen	0	0	0	0	Peaches	dozen	0	0	0	0
Filberts	℔ lb.	0	9	1	0	Pears, kitchen	dozen	4	0	6	0
Cobs	₩ lb.	0	9	1	0	dessert	dozen	3	0	8	0
Grapes, hothouse	₩ lb.	2	6	8	0	Pine Apples	₩ lb.	1	0	3	0
Lemons	₩ 100	4	0	8	0	Walnuts	bushel	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes	dozen	2	0	to 4	0	Mushrooms	pottle	1	6	to 2	6
Asparagus	bundle	6	0	12	0	Mustard & Cress	punnet	0	2	0	0
Beans, Kidney	₩ 100	1	0	1	6	Onions	bushel	2	6	4	0
Beet, Red	dozen	1	0	2	0	pickling	quart	0	4	0	0
Broccoli	bundle	0	9	1	6	Parsley	doz. bunches	2	0	0	0
Brussels Sprouts	½ sieve	2	0	4	0	Parsnips	dozen	0	0	0	0
Cabbage	dozen	1	0	2	0	Peas	quart	0	0	0	0
Carrots	bunch	0	4	0	8	Potatoes	bushel	3	6	4	9
Capsicums	₩ 100	1	6	2	0	Kidney	bushel	4	0	5	0
Cauliflowers	dozen	3	0	6	0	Radishes	doz. bunches	0	0	0	0
Celery	bundle	1	6	2	0	Rhubarb	bundle	0	0	0	6
Coleworts	doz. bunches	2	0	4	0	Salsafy	bundle	0	9	1	0
Cucumbers	each	0	9	1	0	Scorzonera	bundle	1	0	0	0
Endive	dozen	1	0	2	0	Seakale	basket	2	6	3	6
Fennel	bunch	0	3	0	0	Shallots	₩ lb	0	3	0	0
Garlic	₩ lb.	0	6	0	0	Spinach	bushel	2	6	4	0
Herbs	bunch	0	2	0	0	Turnips	bunch	0	2	0	0
Leeks	bunch	0	2	0	4	Veg. Marrows	each	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 20—26, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
20	TH	Royal Society at 8.30 P.M.	45.5	30.7	38.1	7 7	5 21	6 43	4 53	28	13 58	51
21	F	Royal Institution at 8 P.M.	46.7	32.3	39.5	7 5	5 23	6 57	6 6	●	13 52	52
22	S	Royal Botanic Society at 3.45 P.M.	46.8	31.9	39.3	7 3	5 25	7 10	7 17	1	13 44	53
23	SUN	QUINQUAGESIMA.	47.4	31.5	39.4	7 1	5 27	7 22	8 26	2	13 36	54
24	M	Royal Geographical Society at 8.30 P.M.	47.1	32.8	39.9	6 58	5 28	7 35	9 36	3	13 27	55
25	TU	SHROVE TUESDAY.	47.7	32.7	40.2	6 56	5 30	7 49	10 46	4	13 18	56
26	W	ASH WEDNESDAY.	47.2	33.6	40.4	6 54	5 32	8 6	11 56	5	13 8	57

From observations taken near London during forty-three years, the average day temperature of the week is 46.9°; and its night temperature 32.2°.

NOTES ON "D., DEAL'S," NOTES.

I AM pleased to see there is at least one specimen of "my lord's gardener" worthy of "D., *Deal's*," respect, and on behalf of some of the fraternity I beg to thank him for the admission. The truth is we are not bulls and frogs, or giants and dwarfs, according to the position we are placed in, but according to the manner in which we discharge the duties belonging to that position, and the amount of intelligence and tact we bring to bear on the different subjects with which we are engaged, be they small or great. "D.'s" article relating his own practical experience suffers nothing by appearing in the same volume as a letter from one whom most of us look up to as the foremost gardener in Britain. On the contrary, there is a great deal in that article worthy of attention, and I think that when such an enthusiastic and careful cultivator as "D." fails, and chronicles his failures as truthfully, we ought not merely to half read his statements and then throw them aside, saying with Dundreary, "It is one of those things no fellah can understand." I believe a solution of most of the questions he raises is possible; and although much of what I shall say on the subject may be merely theoretical, I can call to mind a good many practical facts of a kindred nature to back it up.

But first I wish to impress on your readers how desirable it is to have communications from people in different positions in life so long as they record faithfully the writer's experience and impressions. I could point out some long-winded articles written in the present day by men who have been most successful in practice, and yet it tires my patience (although I believe I am not extraordinarily impatient) to read five lines of them, because I can see they are drawn out to order, merely to cover so much paper. They forget that good old piece of advice, When you have little to say, say it in as few words as possible. On the other hand, the experience of a London seamstress, or a Lancashire miner, in growing a window plant would be devoured with a relish, let the composition be ever so unpoetical.

Then, again, the writings of educated gentlemen on matters horticultural, if not always quite practical, are enjoyable for the sake of the composition, and they often point out matters needing explanation which have either been overlooked by practical gardeners or have been thought by them too simple to require explanation. Unfortunately gardeners, who to be successful ought to have scarcely less than an university education, are comparatively not educated at all except so far as they have educated themselves. Gentlemen amateurs, then, have a great advantage to commence with, and as they are spending their own money and can confine their attention to their own hobbies they can experiment as they like, and whether successful or not their experiences are generally worth recording. Great discoveries and inventions, not only in horticulture but in everything, come as often as not from outsiders. Professionals are more or less prejudiced and tied to particular grooves from which it is impossible to escape without a gigantic effort. But to my task.

Why did "D.'s" home-grown Ixias fail? I venture to think they exhausted themselves by seeding, and that had he prevented impregnation, or even picked the flowers off as they commenced decaying, the result would have been different. In their natural habitat both flowers and seeds would have had more enemies than they had under "D.'s" fostering care. Perhaps, too, "D." "rested" them too much—*i.e.*, kept them too dry and starved them after the tops were partially withered; but the seeding, as an Ixia will seed, is quite sufficient to account for the failure. I allowed some very large bulbs of Amaryllises to seed last year, they dwindled to almost nothing and did not quite recover during the season. Flowering does not seem to hurt them. We know from the accounts of visitors to the bulb farms in Holland how careful the growers are to remove the flowers before there is any chance of forming the seed, and how waggonloads of Hyacinth spikes in the greatest beauty may be seen annually consigned to the rubbish heap. They are, I believe, merely allowed to flower to prove the correctness of their names, and that is all.

Why do imported bulbs of Lilium auratum die? Possibly they are not ripe when taken up. We know Liliums do not like being disturbed at all; they commence rooting afresh very soon after the stems ripen, and would suffer somewhat even if kept out of the soil a few days: what, then, can be expected if they are kept out during months? I would suggest that they be not allowed to flower the first season, but that every leaf be taken great care of, and the stem carefully tied up and allowed to remain till it dies off.

What is the Gladiolus disease? I have not had a large amount of experience with choice Gladioli, but those I have I take up carefully and place in soil in the autumn, and take care of the foliage as long as possible. When quite ripe the old corms and dead stems are picked off, and the planting corms are placed in the soil again singly in 6-inch pots, merely keeping them from frost and allowing them to start growing when they like. They are planted carefully in ordinary good garden soil not highly manured, and I find that those so treated are generally more healthy than any I can buy. Gladiolus growers use too much manure, are not sufficiently careful about ripening, keep their corms high and dry when they ought to be in the soil, and then say they are diseased.

I was afraid I had the dreadful Cucumber disease two months ago. Every fruit as soon as it commenced forming exuded a gummy substance. After repeated experiments we found it was merely a case of overfeeding during the dull weather of autumn when there was little sun to be seen and little fire needed. Evaporation being very slow, the plants, which were very vigorous, took up more than they could digest. By limiting the supplies the old plants almost recovered, and young plants are quite healthy.—WILLIAM TAYLOR.

EXPERIMENTS IN RIPENING LATE PEARS.

As this is just the time that gardeners and amateurs are troubled with Pears that will not ripen, according to their experience, and are remarking with sadness upon the shrivelling of their fruit, I will narrate a few experiments which

I have made, together with remarks on the subject by a friend of greater experience. I am the more anxious to do this at once, as this is "the last time of asking;" it is now February, so now or never. Also Pears are very few this year, hence so very precious—much too precious to be thrown away.

Summer Pears ripened admirably in their turn—Doyenné d'Eté, Jargonelle, Beurré Giffard, Madame Treyve, &c.; then came Beurré Diel, which ripened very fairly in a dark cupboard in my dining-room. The few Pears I had in December I removed from my fruit room, as I found it was hopeless work there. Hard, shrivelly, turnip-tasting was their character. Into a dark cupboard was my first remove, and it was successful in part. I should state there was always a fire in the room. Time wore on and I had two remaining varieties, for, alas! the Pear crop had been poor indeed; these two were Soldat Esperen and that splendid Pear and excellent cropper Bergamotte Esperen. With this latter I have been extremely successful, because I undertook it at the right time. On the 27th of January I took thirty Pears, wrapped each in paper, and put them in a dark box, with paper also over them. I placed the box with thermometer in it on a bench touching the wall of a room, which wall was rendered very hot to the hand by the closed range of the kitchen being on the other side. During the coldest nights the temperature kept up to 54°, and during the days 64°. I watched the gradual ripening of the fruit, going from uneatable to the eatable to, at the fortnight's end, the luscious melting condition so pleasant to the palate—in winter especially, because so rare. My experiment was wholly successful, and I have no doubt that, given a sufficient quantity of fruit, I could keep on ripening box after box, month after month.

Now for the words of another—a gardener of great experience and wide knowledge. He writes to me thus: "I cannot help thinking gardeners generally have much to learn in regard to gathering and ripening Pears. I once visited a gardener who had two bushels of Joséphine de Malines Pears in the fruit room useless, as he said, and he must throw them away, as he had done during previous years. He readily gave me a bushel, which I carried home. A fortnight after 'his family' attended a dinner party given by 'my family,' and the Pears were, in a double sense, in everyone's mouth. I had placed them in a close box and stood the box on the hot-water pipes under the stage of a plant stove, and they ripened splendidly. I could thus ripen every late Pear, but left in the cold fruit room they remained hard. No, not all. I could not ripen Chaumontel and Beurré Rance satisfactorily, and not always Easter Beurré. I could ripen Bergamotte Esperen admirably, but it and some others never would ripen at all if left thinly in a cold and light fruit room. The district I was then in was the north-east of England, and not the most salubrious district for Pear culture. Of course in some cases there is some hidden mystery that accounts for the non-ripening of the fruit. Nice judgment is requisite as to the time of gathering late Pears; if gathered too soon they shrivel, if left too long they remain hard—becoming, as it were, woody. When the foliage changes it has done all it can for the fruit."

The same gardener writes to me at a later date thus: "There is more in the artificial ripening of Pears than the world as yet recognises. By adopting the practice [described in his former letter and quoted above], I have been able to send Bergamotte Esperen into dessert from January until April. The period of use of any late Pear can be greatly prolonged by introducing into heat, a few at a time, the same as if they were so many plants for forcing. There is then also no waste; but by allowing the bulk to ripen naturally, supposing it possible, the Pears often cannot be eaten fast enough, and quantities are wasted. That waste is very common and very deplorable."

Such, then, are some details concerning ripening of that best of all hardy dessert fruit, the Pear.—WILTSHIRE RECTOR.

ROSES AND THE FROST.—I am afraid the frosts have done much damage to the Rose trees, especially standards. On looking through my own I see numbers dead and black, the Briar stems in many cases being dead also. Amongst the Hybrid Perpetuals the Rose which has suffered most is Countess of Oxford, Mdlle. Eugénie Verdier being next. This family, which includes Princess Christian, Lyonnaise, &c., appears to be rather tender. Amongst Teas Belle Lyonnaise, Madame Margottin, Madame Hippolyte Jamain, Devoniensis, &c., have been killed outright, whilst many have suffered severely. Homère has borne it well, and the Hybrid Tea Cheshunt Hybrid best of all. The frost has had not the slightest effect on it. Amongst Noisettes Maréchal Niel of course has gone in numbers, and Triomphe de Rennes. Céline Forestier seems to be the hardiest in this section.—F. BOYES, *Beverley*.

THE WEATHER AND KITCHEN GARDEN WORK.

LUCKILY we had our kitchen garden work well advanced before the protracted severe weather we have lately experienced came upon us, but from what I hear such work is far behind with many, and with such this will be an extra busy spring in the kitchen garden. It is a great advantage when all the ground is ready some time before the crops have to be put in, as when this is not the case any little spell of good weather which might be utilised by sowing and planting is spent in preparing the ground, and the chance of putting in the crop may not occur for weeks afterwards. This applies to Onions, Parsnips, early Carrots, and all such seeds. We always practise a system of digging or trenching over our kitchen garden quarters immediately they are cleared of the crop, and in this way we are never behind having the ground ready for the succeeding crop. In many gardens, however, those who should be engaged digging and trenching in the kitchen garden are out planting in the woods or doing other alterations or improvements in autumn, and a bad spring leaves such no chance of growing their vegetables as they ought.

Those who are now behind with their kitchen garden work will find it a good plan to take every available opportunity of turning the ground over when it is in working order; and if pruning or nailing has yet to be done, only do it when the ground is so wet that it should not be trodden on. Give attention to the quarters which will be wanted first. Onion ground cannot be too early or too well prepared; indeed, the same may be said about all ground that has to receive seed between this and the end of March; but mark this, ground that is not required for a crop before April is much better not touched until the beginning of that month. Then and after that soil may always be found in such good working order that the crop may be put in immediately it is dug. Ground that is intended for Potatoes, and which has not been dug, need not be turned over until the crop is being planted, and then dig and plant at the same time.

All soil should be in capital working order this spring, especially that turned over in autumn, and with favourable weather through the latter part of February and March seeds may be sown quickly and well; but one thing should be always borne in mind, and that is never to attempt seed-sowing when the soil is "sticky." This would completely spoil the whole benefits which may be derived from the salutary influence of the frost. Some crops are recommended to be sown at one time and some at another, but we are never particular to a week or a fortnight later or earlier than a specified time, only providing the soil is in free working order.

I am warranted by experience in saying that Onions, Turnips, Carrots, &c., sown in wet cloggy ground the first day in March will not be more forward on the 1st of July than those sown in a fine open dry soil on the 1st of April. The conditions under which such seedlings are started at first have a greater influence on their ultimate development than many suppose; but provided seeds are sown when the ground is in the best condition, it is surprising how very little they are injured by any bad weather which may immediately follow. It is on this account that we never miss a good chance in February of sowing many seeds generally advised to be sown late in March. Stiff soil cannot be worked too well on the surface before sowing seeds of any kind or at any time. Some parts of our kitchen garden are very clayey; others quite the opposite. We always try to adapt the crops to the soil, and reserve the clay for Broccoli, Savoys, Celery, &c. A little scheming of this kind is often of much advantage in a bad season.

Lately we have been burning all the trash and refuse we could find about the place. The ashes from this are carefully saved and mixed with chimney sweepings from the castle, old potting soil sifted from the potting shed, and a little spent dung from the Mushroom house. This heap is kept dry in a shed, and whenever drills are opened for any seed they are filled up of this compost. It is wonderful the advantage this gives the seeds, and I am sure no better plan of covering them could be practised. In very stiff soil the plan may be improved on by drawing the drills a little deeper than is neces-

sary, and putting a little of this stuff in before the seed is sown, and then covering up as usual.

Some writers object to others changing their practice and opinions on gardening subjects, but for my part I can see no harm in this if no person is led astray by so doing. At one time we always sowed and cultivated our Onions in beds about 4 feet wide. Last year we had them row after row over a large quarter without forming a bed, and while we secured a number more rows on the piece by this plan than in beds the produce was no way inferior. So well did this plan answer with several crops we tried last year, that I do not think there will be a bed formed in the kitchen garden here this year. From the frequency I have mentioned Onions in these few notes perhaps my readers may think I am rather partial to this crop, and so I am this year, as I have had seed of the leading varieties from about a dozen nursery firms. From these I intend selecting the best stock and retaining it.

Judging from the way in which spring Broccoli, and in fact autumn-sown Cabbage, has suffered this winter I suspect that vegetables will be rather scarce in April and May, and to make up for this those who have the means will do well to lose no time in forwarding all early frame crops of vegetables. —A KITCHEN GARDENER.

A FEW GOOD OLD AND NEW ROSES.—No. 2.

(*Continued from page 96.*)

No. 4. *Rosa semperflorens* (Curt.), *Monthly Rose.*—Most botanists consider the Monthly Rose only to be a variety of Rosa indica, *Linnæus*, the native habitat of which is supposed to be, according to Linnæus himself, China. Linnæus, as regards Rosa indica, was chiefly influenced by an indifferent sketch by Recueil of Petivèro, who figured it under the name of Rose of Tchousan, and probably represents the Musk Rose of modern botanists, though certainly not of Desfontaine; Rosa chinensis, *Jacq.*, being another appellation. The Monthly Rose of modern times is certainly indigenous to Oriental India, where it is principally called the Rose with Small Flowers; it also goes under the name, according to Persoon, of Rosa bengalensis. The large-flowering variety is distinguished from the other only by a more vigorous growth and larger flowers. These two varieties flower throughout the year, not only in Oriental India but also in Germany. They are perpetuals in the proper sense of the term. For what reason are they not classed in that category? Both varieties stand our most severe winters with impunity.

The large and small-flowered Monthly Roses were introduced into Europe, probably in the first instance to England, about the year 1780. They were then, however, treated as tender plants, cultivated in pots, and very seldom, as was the case in France, planted out in the open air. One of these Roses was grown out in the open in the gardens round the imperial palace of St. Cloud, near Paris, in 1812. It was noted for the rare beauty of its flowers, some of which were to be found throughout the year. It was first of all styled a perpetual or ever-blooming Rose; afterwards it received the name of Count Lélieur, the imperial officer of the palace. At the overthrow of Napoleon's dynasty it was lost sight of for a time. When the Bourbons again reoccupied their former throne and re-established themselves afresh at St. Cloud the court flatterers renamed the Rose, which was still causing a sensation, the Rose du Roi. Count Lélieur resented the arbitrary change of the name, and demanded the restitution of its former one. His request being refused he instituted a lawsuit, which lasted several years and was at last brought before the supreme court. This court in giving judgment decided against Count Lélieur's name, and affirmed the adopted title of Rose du Roi.

The time for perpetual Roses was at hand; the long peace which followed was very favourable to horticulture. Seeds from good varieties were saved and sown, new varieties were thus obtained, these being generally an improvement on the old ones.

5. *Tea Rose. Rosa fragrans* of Th. and Red; *Rosa indica* of the French Rose-growers.—This is without doubt another valuable species, and is also indigenous to Oriental India, where it enjoys the reputation of having been cultivated since very remote periods. The Tea Rose is distinguished from all other garden Roses by its delicate perfume and salmon colour. The young leaves also assume from their earliest development a brownish tint, and oftentimes are quite brown in colour. Communications received from French Rose-growers prove that the seeds of Tea Roses never produce another species, but always a Tea Rose, except in the case where a plant had already been obtained by a cross, and consequently a hybrid. All our grand Roses have sprung from the five species that have now been referred to.

But there is no doubt that Roses have existed at all times, with single flowers, however, and growing in a wild state in those countries where garden Roses are grown, notably throughout Greece and also in Syria, especially in the environs of Damascus. It would be well worth inquiring if the garden Roses of these two countries date their parentage from the wild Roses, or if they were subsequently introduced. If so, when did it take place? This is all the information I have been enabled to gather from the documents in my possession about Roses under cultivation.

Amongst the five species of Roses named there are three—the Damask Rose, the Provence along with the Centifolia Rose, and the yellow Rose, which, although they occupied formerly a high position, have during the last fifty, or at all events during the last thirty years, very much declined in public estimation, and are now nearly obliterated from our gardens; they are now only found in small villa and cottage gardens. On the other hand, two other Roses from Oriental India are now very much sought after—namely, the Monthly Roses (Perpetual Roses) consisting of two principal varieties and the Tea Roses. New and interesting varieties have resulted from cross-fertilisation, not only between the two last-mentioned species, but also with Rosa chinensis, and probably also with the Damask Rose. Through the blending of the above species we are now in possession of that great diversity amongst our Hybrid Perpetuals.

The real Bourbon Roses are certainly true hybrids. It is now fifty years, or perhaps more, since the double Provence Roses (Rosa gallica) went under the name of Bourbon Roses. At the present time, however, the latter only represent a certain section of hybrids of the double Provence Rose, which emanated from two species indigenous to India, and were obtained through the assistance of some persons living in the Island of Bourbon. In 1817 it came to the knowledge of Bréon, Director of the Botanical Gardens in the Island of Bourbon, that a particular Rose was largely cultivated in the island for the formation of hedges. Two years later Jacques, gardener at the Castle of Neuilly near Paris, the residence of the Bourbon family, received some seeds; these seeds formed the foundation of a new section of Hybrid Perpetuals.

According to Pirolle, however, living specimens were brought to France from the Island of Bourbon about the year 1821 or 1823. No encouraging results were at first obtained from seeds. It was not till the year 1831 that Desprez, a gardener at Yèbles (Seine-et-Marne), raised two sorts which proved to be a decided gain, and were sent out under the name of Rose Desprez. Probably later on they were crossed with Monthly and Tea Roses. Gloire de Dijon and Souvenir de la Malmaison are the best known of the Bourbon Roses. The latter was raised by Beluze, a gardener at Lyons, in the year 1843. The Bourbon Roses of modern times are of vigorous growth with large dark green foliage, which when in its young state, just as in the Tea Roses, is more or less brown, which colour they often continue to show on the edges of the leaves, which are bristly rather than serrated. The flowers are for the most part of a good size, and the predominant colour varies from a delicate flesh colour to milky white; but flowers of a decidedly dark colour are also met with. For instance, the already forgotten Rose Deuil de Louis Philippe; again, the salmon colour is represented in Gloire de Dijon, which proves that the Tea Rose contributed to building up the fabric.

Now, as regards the second hybrid section of the Roses from Oriental India—the Noisette Roses—we are pretty sure of their pedigree. The first was raised by Philippe Noisette—who, if I am not mistaken, was the owner of gardens at Charlestown in South Carolina—by fertilising the Rosa semperflorens with the pollen of Rosa moschata of Jacquin. The plants thus raised had a habit and flowers peculiarly their own, quite distinct from anything to be found in any other Rose. The stem, as in the case of Rosa semperflorens, was erect at its base; but the branches had the same weakly habit as Rosa moschata, and showed a drooping disposition if they were not artificially kept up. This peculiarity makes them suitable as weeping or umbrella-stand Roses. For this purpose they are used to the present day, and they deserve to be largely cultivated, considering the free-flowering habit of the plants, when one cluster often contains hundreds of flowers. They are hardly the size of the Monthly Roses, but they make up that deficiency by

being more double. Their diversified colours vary from the most brilliant red to the purest white, and from yellow in all shades to salmon. Flowers having two distinct colours are also met with.

In the case of the Rose Claire Carnot the outer petals are white with a red border, whilst in other respects the flower is a brilliant yellow. This salmon yellow and the yellow colour which is met with so frequently in Noisette Roses lead to the conclusion that the Tea Rose has also contributed to their improvement.

Philippe Noisette in 1814 sent his new Rose to his brother Louis Claude Noisette, the celebrated and learned gardener at Paris, who flowered it for the first time about the year 1818. Public opinion was so favourable that he immediately caused it to be put in commerce, but it still remains a comparatively rare plant with us in Germany.—KARL KOCH (in *Journal des Roses*).

MUSHROOM DIFFICULTIES.

MR. TAYLOR in his article upon "Difficulties Overcome" suggests to my mind a subject worthy of comment—namely, Mushroom difficulties. If gardeners who have surmounted failures in the culture of this indispensable esculent would communicate them in a manner to afford instruction they would do good service to many perplexed brethren.

From my experience nearly all gardeners fail more or less at times in the production of Mushrooms, notwithstanding their culture seems comparatively easy. Mushrooms are sometimes produced with the greatest certainty; on the other hand, a series of failures come which can scarcely be accounted for. Those who have achieved great success in growing Mushrooms under various circumstances will not attach primary importance to the position of the house or door. We have entertained ideas that those were matters of supreme importance, and that the air acting with great force on the beds was fatal to success; yet these ideas are shaken when we see in a neighbouring garden Mushrooms in abundance, and where the house is situated even worse than our own, in which Mushrooms are perhaps a failure. In the autumn of 1877 a neighbouring gardener was gathering fine Mushrooms outside from a heap of soil, in fact an old bed, which had been thrown out of the house in early summer: this old bed continued bearing until the beginning of December with only an old light propped over it to shoot off some of the rain. I may ask, Had not the external air more force upon the bed than upon those beds sheltered underneath the roof of the Mushroom house? In spite of wind or weather the Mushrooms continued to come outside. This may be considered one of the peculiar freaks of Nature. I do not dispute what Mr. Taylor has said about the position of his house being the cause of his failures. The door of the house here faces south-east, and for 3 or 4 feet along the bed nearest the door I scarcely ever gather a Mushroom. I only advance the above to show that Mushrooms are produced at times under very remarkable circumstances, and I could add other instances of the same nature.

The position of the house is not the greatest difficulty the Mushroom grower has to surmount; there are others, and some of them I believe are beyond his power to overcome. Some years ago I was acting as indoor foreman in a good establishment, and the Mushroom growing was in charge of the kitchen garden foreman. Bed after bed was made up, and every one a failure. After a series of disappointments this portion of his charge was turned over to me, and for some time all went on well, and Mushrooms were gathered in abundance. At last a change was made in the stables in the way of a fresh coachman, and after that we had disappointment after disappointment; the coachman at last was blamed, and I have every reason to believe that the source of the failure was in the stable, as I will endeavour to show. I am not without failures here, and thoroughly believe that when horses have received much medicine and the droppings from those horses are placed in a bed intended for Mushrooms, the result is a failure. Again, I believe Carrots have a very great tendency to destroy the spawn. After the horses begin to have Carrots I look for Mushroom failures, and they mostly come. The beds I have been gathering from have had no droppings mixed in them, but have been made with loam and leaves.—W. BARDNEY.

"ROSARIAN'S YEAR-BOOK."—In your review of this work you have overlooked in Mr. George Paul's interesting chapter to notice what is to me a puzzle. In the early part of the paper Mr. Paul gives it as his opinion that Hybrid Perpetual Roses François Fontaine and Sénateur Vaisse are synonymous. Further on in the paper, when treating of distinct families of Roses, François Fontaine is placed in the family of Alfred Colomb, although Sénateur Vaisse appears as the type of another class. Perhaps this is a misprint, or, if not, no doubt Mr. Paul will explain.—G. C. S.

IMPORTED BULBS OF LILIUM AURATUM.

IN reply to "D., *Deal*," I can say that in a small way I do not think I have been unsuccessful in growing Lilium auratum. I bought at a sale three years ago some imported bulbs, which we placed in pots in a compost of the light soil of this place, mixed with a good share of sharp road sand, but without any kind of manure. The bulbs were planted deep in the pots, and the pots filled to within 2 inches of the rim with the compost. As the spikes grew and hardened I filled in from time to time of the same compost till within half an inch from the top of the pot; all the time keeping them in a cold frame. As soon as the smallest sign of a bud appeared we gave very small doses of Standen's patent manure, perhaps three times in two weeks, watering carefully. The result was that though the blooms were not numerous they were very large; the number of flowers on a spike varied from six to nine. There was only one spike from each bulb, the blooms measuring when open 11, 12, and 14 inches across from point to point. The flowers of the next two years have been much more numerous but of less size, each bulb throwing up three and four spikes in the place of one on the first year. They are now in the open covered with about a foot of leaves to keep out frost.

Will someone kindly help me with Pancratium maritimum and Belladonna Lilies? The first I cannot flower at all, the second did well the first year. I had them from Jersey, but since then we have not had a single bloom.—B., *Walton-on-Thames*.

PEAR ELECTION.

No doubt the cropping and bearing quality of Pear trees must come to the fore in any list; but "S. S." suggests that when I excluded Beurré Diel and also Marie Louise d'Uccle and Durondeau from the list that I sent, I omitted some of the best bearers. I quite agree that Beurré Diel is a good bearer, in fact I have sold 18 stones from a single large pyramid, but it is, as a rule, of very inferior quality. If given a wall, or tried in an orchard house, it produces large and good fruit to look at, but the produce is mealy and tasteless, at least such is my opinion after many years' experience, and on standards and dwarfs it is very apt to crack and split. I had some hundreds last autumn which were not worth gathering from the trees. Marie Louise d'Uccle is a larger form of Marie Louise, but not so good a fruit. Of Durondeau I have had little or no experience. I am aware in all lists of fruits there will be great differences of opinion; but my object in not suggesting too open an election is to prevent "WILTSHIRE RECTOR" from having too heavy a task to perform, and to endeavour as far as possible to secure reports from different counties, soils, and climate.

I wrote thus far before receiving the *Journal of Horticulture* of the 13th. I think "A NORTHERN GARDENER" is right, and that I made a mistake in sending a list, but wished rather to raise the question of quality against quantity. I will send a few remarks upon "HEREFORDSHIRE INCUMBENT'S" letter for another issue of the Journal.—C. P. PEACH.

I THINK "WILTSHIRE RECTOR" is entitled to the thanks of your correspondents for undertaking this desirable work, and I hope to soon see it carried out. As he has stated that he is open to suggestions about the mode of conducting the election I will make a few remarks. In the first place, I do not think there will be any advantage in dividing the list into summer, autumn, and winter, because the early Pears are so few in number that almost everybody has them now; and with regard to the winter Pears, on some warm dry soils the Pears ripen off early, so that very few will keep much after Christmas. I think it would be better to give a list of twelve pyramid Pears and place them in the order of ripening. Mr. C. P. Peach has named twenty-four: that I think too many, and if we have twelve very few persons will mention exactly the same, and there would be quite enough mentioned; in fact all the good Pears in cultivation would be sure to be named in a list of twelve. I think it would not be at all a bad plan to have a list of wall Pears as well, from six to eight in number, and

marking with a letter S those which would answer as standards in both lists. It would not matter if several of the Pears were mentioned in both the pyramid and wall list. Twelve pyramid Pears and eight wall ditto would make up the twenty first proposed by "WILTSHIRE RECTOR."

I think the suggestion of a separate division for the north of England a good one, for many kinds would not succeed north of the Humber which thrive very well here.—AMATEUR, *Cirencester*.

I BEG to thank Mr. Peach very much for his advice on this subject, also "R. M." and "S. S." I notice that in last week's Journal "THE HEREFORDSHIRE INCUMBENT" and "A NORTHERN GARDENER" have spoken out, also "R. M. A., *Cheshire*," has again written. This is all exactly as I wish. Let the subject be well ventilated; and presently, benefiting by advice given, I will write again. It is an important subject not only to the amateur but to those who get their living wholly or in part by the sale of fruit. We all mean right, the point is to carry out our meaning in the best and most practical way.—WILTSHIRE RECTOR.

ALTHOUGH I agree in the main with "A NORTHERN GARDENER'S" protest against the premature publication of lengthy perplexing lists of dessert Pears, still as the list I promised with my notes in last week's Journal, which I now subjoin, is so small and select and differs essentially from the same sized northern list of Mr. Peach, that I believe its publication at this present season of planting may be productive of some good to the public.

My selection of dessert Pears is as follows—

1, Doyenné d'Eté	13, Seckle
2, Jargonelle	14, Doyenné de Comice
3, Williams' Bon Chrêtien	15, Maréchal de Cour
4, Beurré Superfin	16, Hacon's Incomparable
5, Brown Beurré	17, Winter Nelis
6, Beurré Hardy	18, Glou Morceau
7, Comte de Lamy	19, Zéphirin Grégoire
8, Marie Louise	20, Beurré Sterckmans
9, Louise Bonne of Jersey	21, Knight's Monarch
10, Beurré Bosc	22, Joséphine de Malines
11, Beurré Diel	23, Bergamotte Esperen
12, Beurré Defais	24, Ne Plus Meuris.

—HEREFORDSHIRE INCUMBENT.

[We also agree with the remarks of "A NORTHERN GARDENER," but as the election cannot take place before the close of the present planting season the publication of the lists will be useful.—EDS.]

ROSE JUDGING—SCENTLESS ROSES.

THE fashion of awarding a place among first-class Roses to scentless flowers is one condemned even by the fair sex, and therefore it is doomed. My point is, that a scentless flower, from the inherent and universally accepted qualities of a Rose, is unfit for a place in the first class at any exhibition. Those who like scentless Roses should have a special class for their imperfect pets, just as those should have who disregard some other essential quality in a first-class flower.

The objection that judges have no time to smell every Rose and to compare notes as to fragrance is by no means formidable when we consider that rosarians are familiar with the scent of all old Roses—that is, Roses which have been grown a year. A Rose known to be sweet need not be tested for scent, nor is it required that there should be any judgment upon degrees or qualities of fragrance. The few new or unknown Roses at an exhibition could easily be smelt. A transient sniff at the bloom in the box or a duplicate bloom would suffice. A judge's nose would not be offended by so pleasurable a stimulant, and he could not well employ the few seconds thus occupied with more delight.

Baronne de Rothschild, Comtesse d'Oxford, and other similarly defective flowers should never have had admission into a first-class list. They lack an essential constituent of the Rose. The aroma of the Rose ever has been, is, and will be its primary attraction and charm. Beauty of colouring and gracefulness of form can be had in other flowers, but the scent of the Rose is its own.

My gardens are 800 feet above sea level, yet my Roses have borne the long frost with little injury. I attribute this partly to the perfect drainage and deep cultivation—nearly 3 feet—of the beds, but mainly to the uniformity of the cold. Sudden alternations of temperature, warmth and cold, frost and sunshine, are destructive of vegetable as they are of animal life.

Marie Baumann and several of the well-known tender weaklings have fulfilled their mission by dying.—WM. SIMONS, *Merthyr Tydvil*.

NOTES FROM MY GARDEN IN 1878.

FLORISTS' FLOWERS.

I MUST still adhere to the old-fashioned classification of these, for I cannot include within that honoured term the mongrel lot that now claim admittance. Very beautiful in their way: I have not a word to say against them in their proper place as garden flowers, and rejoice in them very much. Phloxes, Pyrethrums, Antirrhinums, Delphiniums, and all such herbaceous plants are most desirable as border plants, but when they lay claim to being admitted to the higher grade of florists' flowers I humbly decline to admit their credentials. Two candidates for the honour have passed their examination of late years and may be admitted to the honourable degree—the Gladiolus and the Chrysanthemum. I do not pretend to give any reason or attempt any definition, simply recording what are my ideas upon the subject. I have grown, then, during the past year three collections—Auriculas, Gladioluses, and Chrysanthemums; for although I had a few Carnations and Picotees in a bed, yet it could not be dignified with the name of a collection, and I therefore leave them out and merely relate my experience with the others.

Ever since I have grown Auriculas, now forty-five years since I first attempted them, I have never had so painful an experience with them as during the past year. I have had them scorched by the frames being kept closed in my absence; I have had a dog quietly taking his bone into the pit in which they were growing, and lying at full length on some of my cherished pets; but I never had the woolly aphis until two years ago, and never had such experience of bother, and trouble, and disappointment in growing Auriculas as during the past twelve months; and the worst feature in the case is that there does not seem to be any prospect of getting rid of it. I have already sung my mournful ditty over them several times in the Journal, but the subject is so curious that I have no hesitation in going over the ground again, especially as in addition I have other experiences. When I first noticed the existence of the aphis I had never known of any of the genus save and excepting the American blight; since then I have found it swarming in my garden—at least I can detect no difference under an ordinary lens between what I find on the Sowthistle, Lettuce, and Gladiolus, and that which has infested my Auriculas; and if so abundant all around me I do not see how it is possible to avoid getting it on one's plants. My friend Mr. Llewelyn has detected it on the glass of his frames, and the downy material with which it is enveloped doubtless aids its dissemination, answering as it does to the down which is attached to the Thistle seed. If, then, like other aphides it is injurious to the health of the plant, is there any hope for the Auricula grower who is troubled with it? I have put this *if*, because doubts have been suggested both to myself and to others whether, when its existence is known and remedies taken against it, it will be found to be so injurious as we at one time supposed. On purpose to try what it would do, I left a plant of General Neill on which I had observed it quite untouched, and towards the end of the summer I perceived no difference between it and those I had operated on. A grower in the midland counties has done the same, and as yet has not seen the damage done that he expected. Mr. Llewelyn, too, is a little in doubt. I have to-day (January 31st) looked at one or two of my best-looking plants, and I found the roots swarming with it. Nothing of the kind can, I believe, be anything but injurious to plants on which it occurs, but to what extent may be a question. One thing is perfectly clear to me, that if it is fatal to them I must abandon, in my present locality at least, the cultivation of a very favourite flower, for I am persuaded that no care or attention on my part can prevent the insect from attacking my plants.

One thing has surprised me in dealing with this pest, and that is the amount of doctoring that the Auricula will bear. I have always regarded it as so very sensitive a plant, and I have often wondered how it was that it endured the messes recommended for it in former years—goose dung, sugar-bakers' scum, consisting chiefly of blood and lime (this scum to be steeped in night soil), dung of poultry, &c., were some of the sweeties the Auriculas of our grandfathers were fed with, and they must have had pretty good digestion to stand this; but I have in truth found them to bear a good deal. I was first

told that if the outside of the ball where the aphis appeared was dusted with tobacco powder that it would destroy them. Well, I tried this, and it is no light matter to turn out a couple of hundred pots and put them through this process. I left them for two or three weeks, and on examining them again found that it had not had the slightest effect on them. I then was told that soft soap with tobacco powder would be an infallible remedy; so I obtained some, made a bath of it, and plunged each of my plants in it. This I thought an extreme measure, a sort of kill or cure; but after waiting a week or ten days to try its effects I again examined them, and found them still alive and multiplying. Was it any use? I asked myself. Let me try Gishurst, which has some analogy to soft soap. So into Gishurst they went. I waited to see whether it would kill my plants, but no! neither plants nor aphis were injured. A correspondent sent me some mixture with paraffin in it; I put it on one plant, but with no success. What was I to do? It was too late to repot; besides, I had enough of trouble with the pest. It was time to remove the plants into their winter quarters, so I determined to let them take their course: if the aphis increased and overpowered them I could not help it; if the plants survived, well and good. I have now just finished (Feb. 8th) their top-dressing; the plants are small, giving me but little hope as an exhibitor, but I have not found any increase of the aphis. Nay, I think it has rather diminished; whether owing to the severe ordeal through which they have passed or not I cannot tell, but the plants are alive and do not look remarkably unhealthy, and I shall be curious to watch the effect of the return of the growing season upon them.

I have this season felt the great comfort of growing Auriculas in a pit instead of frames. During the long continuance of the severe weather I was enabled to look at them every day without disturbing the covering, and could do so with the greatest ease; while owing to their being so low, as the shelves are on a level with the ground, they did not suffer anything like what they would have done in frames. Indeed I do not think that during all the severe weather the pots have ever been hard frozen.

I had yet another experience, for no good but brings some counterbalancing evil; and as this place is a veritable place of springs, the pit being sunk about 5 feet, I was one day after a thaw surprised to find about 6 inches of water in my pit. A spring had burst up, and this was the result. However, the water subsided again and I am free.

Have I, then, exaggerated in saying that the year 1878 was a worrying one to me as an Auricula grower? It is hard lines, after being so many years following their culture, to find oneself assailed by a new foe. However, the Vine-grower has had his phylloxera and the Hollyhock grower his fungus, and amidst the troubles that have of late assailed the gardener the poor little Auricula grower has had his share. I may emerge from the strife a victor; if not, I must only live on the memories of the past.

"The battles, sieges, fortune
That I have passed . . . . . .
Even from my boyish days,
Wherein I spoke of most disastrous chances,
Of moving accident by flood and field,
Of hairbreadth 'scapes."

—D., *Deal.*

LINUM TRIGYNUM.

I QUITE agree with "J. S." on page 101, that this plant is not cultivated so much as it deserves to be, for in a mixed collection of stove-flowering plants it is very effective from November to February or March. The flowers individually are of beautiful form and golden colour, and although each flower does not last very long, there are generally plenty of buds to keep up a succession. It is a native of India, and strikes readily from cuttings in the spring if placed in a gentle bottom heat.

I have found that it grows freely in the summer months in a greenhouse in company with such plants as young Fuchsias, where the plants can have the benefit of the syringe twice a day, as this Linum is a plant liable to attacks of red spider. It is of quick growth and must be frequently stopped till August, when the plants should have their final potting. Eight-inch pots are a very good size for flowering them in, for in that size they will attain a height of 18 inches and as much in diameter. A compost formed of three parts loam and one part of old hotbed manure with a little sand, the whole well incorporated, I have found suits them well. They must be transferred to a light position in the stove on the approach of cold nights in the autumn.

Unfortunately this good old plant has its drawbacks, for now-a-days fashion demands of the gardener cut flowers and plants for room decoration in abundance, and this plant is almost useless for those purposes, at least I have found it so. So long as it stops in the stove it is beautiful, but when either cut flowers or plants of it have been taken to the house the flowers have nearly all dropped within twenty-four hours. Plants were also placed in a warm conservatory, but with the same result—losing their flowers in a day or so, but when taken back to the stove more soon opened. The engraving accompanying "J. S.'s" remarks is a capital illustration of this bright winter-flowering plant.—A. HARDING.

NOTES AND GLEANINGS.

WRITING from Orton Hall Gardens, near Peterborough, on the EFFECTS OF FROST ON VEGETABLES, Mr. Harding states that, "All kinds of the Brassica family have suffered severely, Veitch's Autumn Giant Cauliflower and Veitch's Self-protecting Autumn Broccoli being quite killed, Snow's Broccoli half killed, and all other kinds much injured. Endive all spoiled. Scotch and Cottagers' Kales have stood well, also the Purple Sprouting Broccoli, which I consider one of the finest vegetables grown."

—— "G. O. S." writes:—"Can any of your readers inform me from experience what is the best kind of INK to use for writing the names of herbaceous plants on strong wood labels painted white? Has anyone tried marking ink, such as is used for calico, linen, &c., or Brunswick black varnish, and with what result? I think many of your readers will be glad to hear of something of the kind, for at present labels have to be constantly renewed or they become illegible."

—— "E. J. D., *Northampton*," writes to us as follows on the PROTECTION OF WALL TREES:—"The method we have practised for the past two seasons is a very simple one, yet it has answered so satisfactorily that it might be of use to others. As soon as the buds have commenced swelling we have covered the trees, which were chiefly Apricots, with hexagon or any common small-mesh netting, taking care to nail top, bottom, and ends securely to prevent cutting winds entering. When the nets were taken off, which was not until about the middle of May, the trees looked all that could be desired—fine healthy foliage, and loaded with fruit. Two other trees which were not covered were cut and blistered so badly that they looked as though they had been fired."

—— OUR correspondent "OBSERVER" writing to us further on CREOSOTE AS A PRESERVER OF WOOD, states that he has not tried it on painted wood, on which he fears it would not answer; but on unpainted work it is a perfect success, and must when known be generally adopted, as it sinks so deeply into the wood that the smallest amount of paint on it is sufficient. This will answer "H. T." and other inquirers.

—— WE do not remember having received so many inquiries as during the present month relative to the RENOVATION OF LAWNS. Some of these may possibly have been suggested by the browned appearance of the turf consequent on the late frost; soil-exhaustion is also a fertile cause of faulty lawns. The following "hints" on this subject by Messrs. Sutton and Sons, Reading, come to hand opportunely:—"It often happens that lawns become thin. To improve them is easy and inexpensive. In March lightly rake the turf, sow some fine Grasses and Clovers at the rate of 20 lbs. per acre, apply a thin dressing of soil mixed with some well-decayed manure or dissolved bones, and well roll afterwards. Moss in lawns is generally a sign of poorness in the soil, or a want of drainage. To effect its removal rake off as much moss as possible, apply a top-dressing of quicklime mixed with rich compost in the winter, and sow more seed in the spring; or a top-dressing of soot will, by encouraging the growth of grass, destroy the moss. This should be applied in the spring at the rate of sixteen bushels per acre. To enrich lawns the best dressing of artificial manure is 2 cwt. of superphosphate, 2 cwt. of Peruvian guano, and 2 cwt. of dissolved bones, mixed, per acre. It will sometimes happen that annual weeds indigenous to the soil come up; these can easily be checked, if not destroyed, by mowing them off as soon as they make their appearance. Plantain, Dandelions, and Daisies, too, will often appear, and these must be cut up each one singly about an inch below the surface (not deeper), and about a teaspoonful of salt dropped over

the cut part. Birds are very fond of grass seeds, and care should be taken to keep them off until the seedlings are well up."

—— "INQUIRER" writes:—"FRENCH GRAFTING WAX.—I find this very efficacious, and a box goes a long way, but it is so extremely sticky that it is very difficult to apply from its adhering so much to the fingers. Can anyone give any advice as to how to use it? I find dipping the fingers in water beneficial, but it does not entirely prevent it." [We know of no other way than moistening the fingers with water.—EDS.]

—— THE present winter has not been more remarkable for its prolonged severity than from the LONG-CONTINUED ABSENCE OF SUN; and the work of forcing plants, vegetables, and fruit has been rendered correspondingly difficult. Potatoes, Carrots, and Radishes in frames present an unusually drawn appearance, forced flowers are pale in colour, and Vines are breaking weakly, and their growth is unusually slow. Mr. Douglas informs us that although he started Muscats in November they have not made much more than 6 inches of growth. This is attributable wholly to the absence of sun heat and light, the temperature by fire heat having been maintained as high as possible consistent with safety. Usually when frosty weather prevails it is accompanied by bright days; but during the late frost the sun was scarcely seen during a period of three weeks, and there have not been more than half a dozen bright sunny days during half as many months. Crops under these circumstances cannot but be later than usual; and this lateness, it may be well to remember, gardeners have been utterly powerless to prevent.

—— WE are glad to learn that Mr. G. F. Wilson's new PRIMROSE SCOTT WILSON that was certificated last year is not only new in colour, but is vigorous in growth and very floriferous. Mr. Wilson informs us that his plant, protected with an earthenware slug guard partly covered with a square of glass, has been flowering for some time past. This variety is popularly known as the Blue Primrose, the colour being a rich violet plum colour, and it promises to be as useful for decorative purposes as it is likely to be valuable for fertilisation. Concentric lines of the single white Primrose, Scott Wilson, and Ealing Crimson would make a splendid spring bed, which we hope to see some day.

—— THE following WHITE ZONAL PELARGONIUMS constitute the best trio yet raised, hence they are worthy of the attention of cultivators. The ever-blooming White Vesuvius has been so often mentioned approvingly that its good qualities are admitted. Less known as stronger growers are the pure and very fine single variety Jeanne d'Arc, and the equally fine double variety Nymphe. These two excellent varieties were raised by the successful hybridist M. Lemoine and are now in commerce. The single pips of La Nymphe will prove valuable for wiring for bouquets and button holes.

—— MANY admirers of Ferns have possibly denied themselves the pleasure of growing the elegant climbing Fern LYGODIUM SCANDENS on the assumption that, its being a native of the East Indies, it required a high stove temperature. It is commonly seen in stoves, where it luxuriates, but the recent severe winter has proved that it will nevertheless endure several degrees of frost. We recently noticed a plant of this Fern that had been frozen hard for three weeks in Messrs. Veitch's unheated fernery at Chelsea. Although the plant is growing at the top of the rockery and close to the glass not a frond has been injured, and young growths are now springing from the crown in the most satisfactory manner. From the fresh appearance of the plant referred to and the severe ordeal it has undergone it is reasonable to suppose that this Fern would prove hardy in sheltered positions in the south of England and in Ireland; it will certainly succeed in a cool house that is in other respects adapted to the requirements of Ferns.

—— IN answer to inquiries at page 98 as regards LILIUM AURATUM Mr. J. Barker, West Jesmond, writes:—"I find it does exceedingly well in a mixture of good turfy loam with about a fifth of leaf soil and a liberal addition of silver sand. As soon as the stems and leaves have quite decayed down I turn the plants out of the pots and remove as much of the old soil as possible without disturbing the roots, and then repot them into larger pots. After repotting they are placed in a cold frame, and given just sufficient water to keep the soil moist until after they start into growth, when they are liberally supplied with water during the growing season. As soon as they have done blooming they are placed out of doors and watered twice a week with weak liquid manure, which greatly helps to mature the bulbs for the following season. Under the above treatment I have had Lilium auratum blooms 10¾ inches in diameter."

—— CONSIDERING the great DEPREDATIONS COMMITTED BY SPARROWS and other small birds on Gooseberry bushes it is a little surprising that lime is not much more generally used than it is as a preservative of the buds. If freshly slaked lime is liberally dusted on the bushes when every twig is wet, as after a heavy mist or fog, the lime will adhere wherever it touches, and so long as it continues on the buds they are tolerably safe from birds; it is effectual also as a destroyer of moss. This dusting should be done thoroughly just before the ground is dug, and the Gooseberry quarter will then have a clean and neat appearance, and the buds will be comparatively safe.

—— THE scientific traveller, Lieutenant Wood, in his "Journey to the Oxus," describes the CULTIVATION OF THE LAND IN AFGHANISTAN. From Kybur to Cabul he assures us that "there was no waste land; every spot capable of cultivation had been turned over by spade or plough, and so complete was the irrigation, that even the sides of the hills enclosing the small circular valleys were successfully cultivated, streams of water being conducted along the face of hills 40 feet above the fields below, and, when rivulets were wanted, a running stream was poured from tunnel wells. In these secluded valleys orchard, garden, and field are beautifully blended; they abound in Mulberry, Pomegranate, and other fruit trees. The banks of these small streams are edged with the finest sward, enamelled with flowers, and fragrant with aromatic herbs."

—— MR. W. C. STRONG writes as follows in the "American Gardener's Monthly" on PYRUS JAPONICA AS A STOCK FOR PEARS:—"I made trial upon a few stocks during the last summer; they were planted with no reference to this purpose. The result was that the buds 'took' with great readiness, and we now have young Pears with luxuriant growth upon this stock. My partner and I are so well pleased with the appearance and promise of this stock that we have planted out our whole crop of last year's seedlings (about 15,000) for the purpose of budding. We find the habit of growth of the seedlings to be clean and upright, and the prospect is decidedly encouraging that a valuable stock for dwarfing the Pear is here promised."

A NATIONAL CHRYSANTHEMUM SHOW.

WHAT are you doing? are you beaten out of the field, or why are you hanging fire? are questions that have many times been put to me during the last few weeks. Although silent I have been watching, and I think it is now quite time the question at issue is settled. I am truly sorry that our Liverpool friends should withdraw one inch from their ground. They threw out the challenge, saying "We are willing to meet you out of London or even in London." I thought we could not meet at a better place than at the head quarters of horticulture, and so made the suggestion, and thought our Liverpool friends would not object to contribute to a prize that partook of a national character—viz., the challenge trophy, cup or vase, as this is what I invited them to contribute to and nothing more. I still think that a fifty-guinea cup would form a handsome prize and bring out some of our best talent. I think I may venture to say that growers and supporters of the scheme in the south would contribute to raise sufficient funds to offer liberal prizes for all other classes of Chrysanthemums, both as cut blooms, groups, and specimen plants, so that competitors could enter in as many classes as they thought proper, and win as many prizes as they could. The principal thing to arrange for is the challenge cup, and all other prizes are bound to follow. I should like to see a money prize added to the cup.

Mr. Hinds came forward professing to remove the hanging mist, but his principal object appeared to be the beating of a retreat for his neighbours to Birmingham. I am quite sure the suggestions made by Mr. Elliott would fail to draw good competition, so that the contest would lie between seven or eight individuals as at Liverpool; indeed only six Liverpool growers staged blooms for their five-guinea prize on their own ground, then how many could we expect at Birmingham? London growers can compete for not a few £5 prizes without going far from their own doors, consequently would decline going to compete at Birmingham for prizes of that value. It is not so with the Liverpool growers: apart from their special prizes last year, their best prize for cut blooms was 20*s.*, and their neighbouring society at Southport offered 8*s.*

It is a mistake to suppose that the contest was to be restricted to Liverpool and London growers. My plan, as proposed to one of the Editors of this Journal, was to draw a line across the map, letting Liverpool as representing the north have the credit of all growers north of that line, and we take south of it. Suppose a grower came from Nottingham, York, Birmingham, Bristol, Bath, Oxford, or any other place and carried off the trophy, who would take the credit of him, north or south, unless arrangements had been properly made? We earnestly hope that growers in these and other localities will contribute to the trophy fund, and compete so as to make it a purely national affair.

I was told last night that our Kingston friends have contributed twenty guineas towards their challenge cup. My remark is, "Well done, Kingston!" But there is one point I do not say "well done" to, and that is handicapping competitors with a guinea subscription. Do they really expect a man from Liverpool to pay a guinea for his chance, £2 10*s.* for railway fare, and other expenses to boot, for an opportunity of competing for their challenge cup? A guinea subscription is suggestive that the cup is not intended to go out of the parish. Pray alter your arrangements, my Kingston friends, and throw your prize open on payment of an entrance fee of 5*s.*, and both your Show and the public will be the gainers.

I do hope our Liverpool friends will not forfeit their words by withdrawing their challenge, but will agree to meet us on the following terms:—That they and the growers northwards subscribe to the national challenge cup as already proposed and meet us at Kensington, the ground first selected, as they themselves left it an open question. The properties of blooms have already been discussed, but I would like to add one word on the subject, and that is, all gummed blooms either by having petals added to them or otherwise should be considered unduly dressed, and hence be disqualified. Varieties have been named; and if our friends are in any way doubtful about the Floral Committee showing any partiality, I have no doubt these gentlemen will be very agreeable for two or three north-country gentlemen being appointed to accompany them to see fair play. If my suggestions meet the views of our Liverpool friends I shall be very pleased to subscribe a guinea to the challenge cup fund and a guinea to the general prize fund; and further, if Liverpool growers wish to get up a similar challenge cup to be competed for at Liverpool next year on similar conditions I shall be pleased to subscribe a similar sum to their cup fund. It now remains for our Liverpool friends to prove themselves men of their word and come forward on the ground of their first challenge, which we accepted. If they retreat they must inevitably lose status in the horticultural world.

I think "ALLERTON" should in justice to the southern growers explain the want of explicitness he complained of in our schedules.—J. OLLERHEAD, *The Gardens, Wimbledon House.*

I AM pleased to read Mr. Redfern's letter on page 117 of last week's Journal. As an old grower of the Chrysanthemum I suggest, in support of Mr. Redfern, that a National Show be held in Birmingham. In the discussion that has taken place the west of England appears to have been forgotten. There are many good growers of the Chrysanthemum in the neighbourhood of Bristol who would be sure to join in the competition, and I think if Birmingham is selected as a central point for north, south, and west it would be convenient for all. If the prize list be a good one and open to all comers it will be an inducement to exhibitors to do their best, and it will be interesting to look over and compare the flowers from the different districts.

I certainly do not like the Kingston and Surbiton arrangement of classing together the incurved with the Japanese varieties. In my opinion it would be much better to confine the competition to the incurved varieties, say thirty-six blooms, distinct, although I believe twenty-four quite enough if we expect to see perfect stands. The Japanese should have a separate class, as I do not consider them flowers of the true florist type, merely fancies. If Mr. Redfern's suggestion is carried out I trust it will be a grand meeting of those who delight in the cultivation of this beautiful autumn flower.—THOMAS HOBBS, *Lower Easton, Bristol.*

THE VITALITY OF GARDEN VERMIN.—Notwithstanding the fact that there have been thirteen consecutive weeks of intense frost, with a minimum as low as 9°, say 20° of freezing, and that the ground has been frozen 12 inches deep, I have to record that in getting up Celery with a pickaxe I found large white slugs apparently lively and happy in the crowns of the plants 6 inches below the surface! To-day (10th inst.), I found amongst some dead ribbon grass which I was cutting off the plant a lively green caterpillar, which began, as our American friends would say, to "make tracks" up a window frame as soon as it had a chance; and in pulling up some Broccoli which were frostbitten I found at the root of one, about 6 inches deep, a big fat grey-coloured grub as thick as a pencil and about an inch in diameter across his coil, living happily; and further on, feeding on an herbaceous plant some inches high, I found a shell snail! According to general ideas the frost ought to have killed all these marauders, but it has not. It will be interesting to have reports from others how they find their enemies have fared during the frost.—G. O. S.

AN EXHIBITION GUIDE.

I AM rather disappointed to find that Mr. Witherspoon's remarks under this heading on page 42 have not elicited a reply from one or more practical fruit-growers and judges. It is a very important subject well worthy of discussion; and I, though perhaps hardly competent to frame a standard of excellence, will endeavour to give my own ideas on the subject, in the hopes of bringing out someone who is. That some sort of a guide would be of real service there is no doubt, at the same time I very much question the possibility of framing anything to meet the views of all. It was comparatively an easy matter with regard to Roses and Chrysanthemums, seeing how readily the growers gave their opinions when required, instead of grumbling in that least desirable of places, the exhibition tent. Instead of obstructing the roadway and cavilling at the decision of the judges, would it not be far better for discontented exhibitors to do as Mr. Witherspoon has done, and thus assist in the good work of remedying the evils complained of? I quite agree with him in the opinion "that as a rule at great shows the decisions are well received." There is more than one reason to be assigned for that. One of the principal is, I think, that the judges are usually competent men, and not comparative strangers to the work. This is well known to the exhibitors, who in many instances are men equally well qualified to act as judges, consequently are less blind to the defects of their own exhibits than are many local exhibitors who cannot or will not see any defects among theirs. At most shows there are usually plenty of gardeners "professing to be judges" who are very fond of criticising the decisions of the judges, sometimes with some grounds for so doing, but more often none. It ought not to be forgotten that the judges have the right of handling and thoroughly examining the exhibits, consequently they often expose defects which the exhibitor on being admitted into the tent quickly hides, thus making what is really a right decision appear altogether wrong. Classes for any kind of black or white Grapes are very common, and very frequently prove a source of much dissension. It is in those classes that superior Grapes, such as Black Hamburgh, Madresfield Court, Muscat Hamburgh, Black Alicante, Gros Colman, Lady Downe's in the black class, and Foster's Seedling, Muscat of Alexandria, and Pearson's Golden Queen in the white class, take precedence over other varieties of inferior quality, which, as a rule, are much easier to grow. Of course there are times when other varieties ought to be placed first; for instance, well-grown Canon Hall Muscat, which is seldom seen, ought to have precedence over any known variety of white Grape, and the Golden Champion and Duke of Buccleuch, if well grown, over any white variety not of Muscat flavour.

In the class for any variety of Pine Apple during the early, and, in fact, greater part of the season, the Queen if well grown usually takes precedence. This and other varieties should, I think, be judged less by weight and more in accordance with their shape, colour, and aroma; the prizes too often go to specimens overgrown at the expense of quality. Melons which are staged in large numbers are judged by tasting. The first prize sometimes goes to a very insignificant fruit. I should like a little more regard paid to the appearance of Melons. In a collection where they (unless stipulated otherwise), are seldom cut, the most attractive and best-grown specimens, quite fit for the table, of a good variety tell more or less according to the quality of those in opposing collections.

Peaches and Nectarines are not judged entirely by size or colour, but both are very desirable qualities. More regard is

paid to the quality of the variety. As a rule, well-grown specimens of Bellegarde, and next to this the Royal George Peaches and the Elruge or Downton Nectarines, are seldom excelled. The prizes for Pears, again, are sometimes wrongly awarded to very large fruit of inferior varieties; but good dishes of Jargonelle, Williams' Bon Chrêtien, Beurré Superfin, and Marie Louise during their respective seasons usually take precedence. Apples are judged much the same as Peaches, quality and colour being more to be desired than mere size. The Red Astrachan is a good type of exhibition Apple. Opinions vary with regard to Figs, the Brown Turkey evidently being the most popular exhibition variety. Good dishes of either White Ischia or White Marseilles are, however, of nearly as much value. Plums of the Gage type are frequently favourites, and the Jefferson, and later on Coe's Golden Drop, tell well. Of Cherries the varieties of Bigarreau and the Black Tartarian are often staged in good collections, and later on the Morello. Apricots are usually represented by the Moor Park, which is good enough for anything. Perhaps the best Strawberry is British Queen, then come Sir C. Napier, President, James Veitch, Sir J. Paxton, and Eleanor, all being good exhibition varieties. All the foregoing may be safely termed "high class," as they are always included in the very best of collections. Raspberries, Gooseberries, Currants, Mulberries, Filberts, &c., are seldom if ever included unless it be in collections of hardy fruit.

From what I have seen of the way in which collections of fruit are judged, the method of procedure is as follows:—If the competition is close the judges commence by contrasting the same kind in each collection, awarding points accordingly, and after this comes the real difficulty. If a Pine Apple is allowed, those staging a good one gain a very decided advantage over their opponents who have none. The same remark applies to a Melon. Grapes are usually but not always limited to two dishes, and a falling-off from the number allowed is against the exhibitor provided the opposing collections have the full number. The next dishes in point of merit, and which I consider of about equal value, are Peaches, Nectarines, Apricots, and Figs; then come Plums, Strawberries, Cherries, Apples, and Pears. The mere fact of staging superior kinds, however, does not entitle the exhibitor to the first prize, as they sometimes, if of inferior quality, have to concede points to good dishes of inferior sorts. It is upon such points as this where judges and exhibitors sometimes differ.

If called upon to give points according to the value of good average specimens of the foregoing fruits, I should award to either a Pine Apple, one dish of Grapes, or a Melon, four points; to Peaches, Nectarines, Apricots, and Figs, three points; Apples, Pears, Plums, Cherries, and Strawberries, two points; and to any of the more common fruits, one point only. Extra fine specimens should receive an extra point, and if inferior one or more points should be taken off. Of the Banana I know but little, and shall leave it to others to appraise. It is sometimes seen in collections, but I do not remember seeing it in a very prominent place in a large show.—W. IGGULDEN.

SEEDLING BRIAR, VERSUS MANETTI.

My mind has been on other things than Roses during the frost, and I have not until now had an opportunity of replying to "W. H. T." After learning that his beds were planted according to the instructions of "D., *Deal*," and that a very successful exhibitor travelled fifty miles to give him his advice and help, I should think it downright presumption on my part to offer any suggestions on growing Roses on the Manetti.

The Manetti is only a favourite of mine in so far as it enables me to grow Roses on soil where clay is absent, or by repeated trenchings and manuring its tenacity is lost. What I object to is, that so much is made of the seedling Briar as if it were something different from the ordinary Dog Rose, which has been used as a stock so long, indeed is the oldest of all foster-parents to the Rose. It does seem to me extraordinary also that no one should have discovered before that the Manetti grew Roses so thin, ragged, rough, and unfit for exhibition. One thing, however, must be gratifying to those who have their Roses on this stock—that before they dig them up and consign them to the rubbish heap, buds can be taken from them to insert into the Briar without any fear of transmitting the bad qualities given them by the Manetti to the Briar, and that the original good qualities of the Rose return. This must be some consolation to those who like myself cannot afford to clear off all those on the Manetti and send for a complete renewal on the seedling Briar. There is one thing to be said, however; we shall only require one hundred plants on the seedling Briar where we formerly had five hundred on the Manetti, and shall still have as many blooms according to your correspondent, which will be a great boon to those who are rather short of room!

In conclusion let me commend the patience and perseverance of your correspondent in growing Roses on the Manetti, as a failure, for twelve years, and thank him for his information on growing them on the seedling Briar.—F. BOYES.

CULTURE OF PRIMULA SINENSIS.

During the winter and early spring months flowers are always in great demand, and plants that bloom during that period are more appreciated than those that bloom later. Although we have not the same number of different species and varieties that flower in winter that we have in summer, we have as compensation telling colours and long-lasting flowers. Of late years the demand for Primulas has been very great, and hybridists have not been behind in improving the form and colour of the flowers as well as the habit of the plants. Varieties of great excellence have been produced, and which are indispensable to all cultivators of winter-flowering plants. Seed of the choicer varieties of Primulas is scarce, consequently rather costly, and care is necessary in raising the plants.

The seed may be sown from March until the end of May: at the former time for producing plants for autumn and early winter blooming, and the latter for flowering at the end of the winter and early in spring. Sow thinly in well-drained pots or pans nearly filled with very light soil. The surface of the soil must be made smooth before the seed is sown, and it must be scarcely covered with very fine soil. The soil when used must be sufficiently moist, so as not to require watering until the seed has germinated. Cover the seed pot with a piece of glass, and place on a hotbed or in any warm structure, and shade to prevent the surface of the soil becoming dry. As soon as the seedlings are visible tilt the glass slightly to prevent damp from settling about the young plants, as they very much dislike a damp and stagnant atmosphere. After the seedlings are well up remove the glass altogether, and place the seed pot near the glass, just shading sufficiently to prevent the young plants from scorching. When they are large enough to be handled, prick them off into pans, using the same kind of soil as the seed was sown in, keeping them near the glass, and shading until they are established, when more light and air must be admitted to them, taking care not to give too much or too little water. When the plants touch each other pot them into small 60-pots, using equal parts of leaf soil and fibry loam; place them again near the glass, and shade slightly until they are established, when shade can be dispensed with. Admit air liberally and give the plants plenty of room, or they will become drawn. After the pots are well filled with roots repot into pots two sizes larger, the soil employed for this shift being two parts of fibry loam, and one each of leaf soil and very old cow dung. After this shift place the plants in a cold frame, and be sure to keep them close to the glass, and when established in the new soil give abundance of air, a slight shade given for an hour or two in the middle of the day in summer will be beneficial. If large specimens are required repot into larger pots as needed, and give those plants that are not repotted a little weak liquid manure occasionally.

Great care is needed in watering: if too much is given the plants are apt to damp off at the collar, yet be sure and not let them suffer by want of water. Pinch off all flower spikes that appear until the end of August. By the middle of September the plants should be placed in a light airy house or pit. I have found them succeed best during the winter when they have had a temperature of about 50°, and with a rather dry atmosphere. Great care should be taken during the winter with the watering, as the evaporation is not so great then as in the summer, and the plants are more liable to suffer from an excess of moisture.

The double varieties are propagated by cuttings inserted after the plants have done blooming and have made some growth. The cuttings should be taken off with a heel, and inserted singly into small 60-pots, supporting each cutting with a small stick, using fine sandy soil; plunge the pots in a bottom heat of 80° until the cuttings are rooted, when they

may be repotted and treated as are the single varieties. The double are much to be preferred to the single varieties for cutting purposes, as they do not wither or cast their bloom so soon: in fact they are amongst the most useful plants we have for bouquets, but when they are used for them they must be wired. The doubles have also had their share of attention in the improvement of both colour and form of flower, and some really splendid varieties have been recently produced.—SOUTHERN GROWER.

NOTES ON ANEMONES.

THE Poppy Anemone, A. coronaria, and its numerous garden hybrids, with their large flowers and gorgeous colours, are

Fig. 17.—ANEMONE NARCISSIFLORA.

favourites of old standing; but not less beautiful, though they do not express it so loudly, are many of the herbaceous or fibrous-rooted species. The only native representative we have of this class is the Pasque-flower, A. pulsatilla, found somewhat sparingly on chalky downs in the southern counties.

The Narcissus-flowered Windflower, Anemone narcissiflora (fig. 17), is a very chaste plant. The flowers of this pretty species are comparatively small, and are produced in umbels containing four or five each. They are paper-white in colour, tinged on the outside of the petals with faint purple. It grows about 10 inches high, and requires an open situation with deep gritty soil. This plant is not very plentiful in our gardens. It is found in the high mountains of the south of Europe, and according to Gmelin it is not unknown in Siberia. It is one of the most attractive of Alpine plants, and quite hardy.—R. D. TAYLOR.

OUR "DEAR" BIRDS.

"WILTSHIRE RECTOR," in the Journal of 13th, has well expressed the feelings of those who, possessing gardens and liking birds, yet suffer sorely from over-protection, snowless winters and other causes having combined, in some parts of the country at least, to increase the enemies of our seeds, flowers, and fruits beyond all bearable bounds. I have a garden in my eye now, close to, though not exactly in, a good-sized village. From early spring to latest autumn when the last outstanding Apples are gathered, buds, seeds, flowers, and not small fruits only, but Plums, Pears, and Apples, are torn, pecked, wasted, and destroyed. I hope for an utter extermination of our voracious ground pirates—slugs, snails, beetles, earwigs, ants, &c., through the long-continued and timely frosts, and I look for more fruit for ourselves and fewer birds to share it with us.

Tame hawks seem of little service in scaring away birds. I reared one from the nest, feeding it till it could peck on raw eggs and raw meat chopped small; then we gave it small birds, accustomed it gradually to light and liberty, till finally it would perch on the hand, follow us about, sun itself on the lawn, enjoy a bath; and being a very fine specimen of its kind our hawk met with a good deal of admiration, but practically he was useless as to catching or even scaring birds from the

garden. As to the sparrows, they used to dispute the chop bones with him. Once only, when an audacious sparrow attempted to pull one away from him Habs struck at him with his talons, pinned him to the ground, and pecked the sparrow so severely that we had it put out of pain, and then gave it back to the hawk, which, having dined, hid it in some Linum grandiflorum and fetched it out for supper some hours after. The larger birds, notably a pair of missel thrushes which had a nest in a bush near the flower garden, were quite regardless of the vicinity of a bird of prey, showing at once their contempt and dislike for their tame enemy by screaming at him and actually striking him with their wings; and this was specially the case when the mother began to show the young ones about for food after they left the nest, the male bird then uttering a peculiar cry and sweeping past the hawk, hitting him in his flight as if to intimidate him. Our hawk, interesting as he was to us and others, came to an untimely end. Having one evening wandered from the garden, he was caught and cruelly killed by an unkind hand. In winter we had the hawk indoors. He was most affectionate to those he knew, and would, when they were from home for a few days, miss them, looking for them all over the rooms, and be quite uneasy till they returned again.—A. M. B.

YOUNG GARDENERS AND THEIR DIFFICULTIES.

I HAVE been much pleased to see in the *Journal of Horticulture* the advice given to young men who are becoming gardeners, and more so to know that they are taking notice of what is set before them. This is the first step to improvement and success. Every help is given to young gardeners both by the Journal and by books. By an hour or two's reading in the evenings after the labours of the day young men may learn a great deal, and also be kept home from vain company. I for one would advise young men to give good heed to what they are told. I would say, In the first place learn to be punctual to time. Do not mix play with work. Be not led away to do as some do, but be sober, be active, be persevering, be energetic, be civil and obliging to all. Learn also to use the compasses, and begin to draw beds for flowers and plans for gardens. Learn further to measure garden ground and land generally. Much useful instruction may be gathered from "Chambers' Information for the People," 1½*d.* weekly, that you will find beneficial in years to come. This is the kind of advice that was given to me and which I have found serviceable, and I trust that others will reap similar benefit from what is tendered to them.—W. GAIR, *Gardener, Belmont.*

I CAN offer a few hints to "YORK," as I experienced the same difficulties as he does when I went as head gardener to the late Earl of Wemyss; but I was forester as well, and I was very nervous at times and wished I was back as foreman at Callander House Gardens. The great secret is to keep as cool as possible and do the most necessary work first, and if possible finish one job before beginning another. Many young men often become perplexed by having "too many irons in the fire." "YORK" should also consult some good book on the kitchen garden and note down his own practice, and then in a short time he will get over the excitement. I knew a gardener who lost his place from over-excitement, and a groom who lost his life.—J. ADDISON, *East Mains, Edinburgh.*

THE article under the above heading, page 111, interested me greatly. Like "YORK," I am a young gardener who has obtained a situation as head gardener and am desirous of keeping it, and have experienced the same difficulties as he has, and can therefore sympathise with him. I fancy that "YORK" has some advantages which I have not; for instance, he has a large kitchen garden while mine is small, and no manure was allowed for it last year, and still I was expected to supply the wants of a moderately large family. Like your correspondent I increased the difficulties of the place by becoming excited and nervous, and many a time began to doubt that I had undertaken a charge too soon. I was not made any better by the questionings of my employer, who is rather hard to please. If "YORK" will take the advice of one who like himself is desirous of doing well in his profession, he will strive to overcome his perplexities, and in time they will vanish. The friendship of a successful neighbouring gardener is doubtless of great value where it can be had. I derive great benefit from reading "Work for the Week" in the Journal, many a timely and valuable hint is obtained from that source. I am now entering upon my second year as head gardener, and though I am conscious of many shortcomings, I do not doubt that they will be overcome in time. If all under gardeners would keep a diary of gardening operations in the situations where they are employed it would prove of great value in after life, and perhaps save many an hour of anxious thought.—NIL DESPERANDUM.

As a young gardener, I feel sure the encouraging remarks of "A KITCHEN GARDENER" and your correspondent James Boyd will not have been given in vain. I believe with "A YOUNG GARDENER" on page 102, that the art of gardening is advancing with sure and steady steps in each department, and I feel thankful to those placed in authority over me for the encouragement I receive for obtaining a practical knowledge in each department. I agree with "A YOUNG GARDENER" also when he says all right-minded young men appreciate the endeavours of those who encourage them to improve in each department; but I fear that all young men are not so anxious as they should be to excel in the useful department of their calling.

I can see plainly that it rests with us young gardeners more than with those in authority over us, if we do not know how to sow or how to plant. When asked to give a helping hand in the kitchen garden, are not there young men who have considered such work degrading? I fear there are some who object to do the same work as a garden labourer, instead of being ready at any time to give assistance where it is required. I think to find out the art of gardening requires a life of study and work in every department, and the man who wishes to meet with success will have to persevere, not wasting his time in idleness and folly. There are many young men who think that by working a few years in the houses they are capable of managing any situation that may be offered them. I think James Boyd may well ask, Where are those not only to fill the pages of our periodicals, but to furnish the tables of our noblemen with fruit, vegetables, and flowers? Many young men are too fond of society and the public house to take sufficient interest in their profession, but what can be expected when some of those in authority over them set the example? Young men have many difficulties to contend with, but let us do our duty to gain the confidence of those placed over us by endeavouring to act uprightly, and be willing to render all the assistance we can to our superiors. By so doing we shall be the gainers in ability, and shall be able to work in confidence and comfort.—A YOUNG GARDENER, *Surrey.*

CHRYSANTHEMUM NOTES.

WHETHER finer blooms are produced by cuttings struck in winter or later on in spring is a question that has often been discussed, and consequently is one on which there is much difference of opinion. My own experience has led me to conclude that it matters nothing at which particular time the cuttings are inserted provided they are healthy and the after-management is correct. When I had not much room to keep the old stools, I inserted the cuttings in December with the same results as when cuttings were struck in spring. I have a batch of cuttings which I received in December from a friend in the south, and I do not expect any better or worse blooms from these than from cuttings of home production which are not as yet taken off the plants. Practically the matter resolves itself into a question of ways and means, as if a gardener finds it to his advantage to liberate his large pots in December, it is simply a matter of wisdom for him to strike cuttings in the autumn so that he can dispense with the old plants. At the same time gardeners who have means of keeping their stock till spring before propagating may do so with perfect safety, though more labour is involved in this case.

Then there is the question of the best varieties. Gardeners who cannot themselves give personal attention to the plants, but are obliged to entrust them to young men who perhaps never saw a good Chrysanthemum bloom, and who, moreover, have an accumulation of other duties claiming equal attention, would do well to limit their number of varieties to a very select few. Such varieties as Jardin des Plantes, Eve, Mr. Brunlees, John Salter, and others requiring good cultivation are sure to be failures when grown under the above conditions; while varieties of the type of Mrs. Rundle, Queen of England, Venus, &c., are not only more easily cultivated, but produce a greater number of fine blooms than do plants of the first-mentioned examples.

There is the further point of producing a good supply of cut flowers for decorative purposes. When this is the chief object it can be attained with perhaps one-sixth of the labour required to grow an equal number of plants under the orthodox treatment. A more rough and ready system of culture may be instituted when decorative cut blooms are wanted and varieties capable of producing the greatest number of serviceable blooms must be grown. The easily cultivated types must be called into service in this case, including also the reflexed, Anemone-flowered, and Japanese sections.—R. P. BROTHERSTON.

WOLFF'S GARDEN PENCILS.

WE trust you will in fairness permit us to reply to the paragraph which appeared in your impression of the 13th inst. reflecting discredit upon our manufactures. We need scarcely say that it is utterly impossible for us to guarantee every pencil of the hundreds of thousands we make yearly, and this being the first complaint that has come to our notice proves that the article is generally appreciated and answers its purpose.

We cannot understand why your correspondent should have gone out of his way to try and damage our reputation instead of first giving us the chance of making good the accidental defect which he alleges to have found. There is no such thing as infallibility in any class of manufacture, but the next best thing to it is the willingness of the maker to replace any defective article when proved to exist.—E. WOLFF & SON.

UNDER the above heading I observe a notice written by "KITCHEN GARDENER" in your last week's issue making a complaint against these pencils. Having known these goods and sold them for many years, I must confess my surprise at seeing them attacked so undeservedly and with so much vehemence. Being offered for sale by the principal houses in the trade is, I think, some guarantee of the standing these pencils have obtained. As I presume the paragraph will come under the notice of the manufacturers I make no further comment, but think that as a detrimental opinion has appeared in your columns you will permit me to state my experience on the subject.—SEEDSMAN.

IN your issue of February 13th we note "A KITCHEN GARDENER'S" remarks, which we think rather too severe and likely to mislead the public. We have sold Woolff's pencils for some years, and never remember a single complaint being made of them: on the contrary, we find the orders regularly repeated. We think, therefore, that if your correspondent's criticism were just, considering the large quantity of the goods we have sold, we must surely have received complaints at one time or another. We, however, enclose you a pencil, and leave you to draw your own conclusions. There is also a red pencil sold by the same firm for gardeners' use, which is certainly the best we have found in the trade. In conclusion we may remark that we find Messrs. Wolff & Son's pencils so superior we use them throughout our establishment for all hands.—DICK RADCLYFFE & CO.

[The pencil we have received, and which appears to have been used, is 5 inches long and contains quite 4 inches of lead of very superior quality; the point is also protected by a metal shield.—EDS.]

WORK FOR THE WEEK.

KITCHEN GARDEN.

Forcing Department.—If there be any frames or pits at liberty lose no time in making up a bed for them, or placing in them sweetened fermenting material about 2 feet in thickness, treading the mass well down; on this place about 6 inches of rich soil, and when warm plant with sprouted sets of Veitch's Ashleaf Potato or some other approved early variety, the sets being covered 4 inches deep in rows 18 inches apart and 12 inches asunder. Sprinkle a little Radish seed thinly in the frames, covering it with fine soil, keeping the lights close until the Radishes appear, then admit air very freely. Wood's Frame, French Breakfast, and White Forcing Turnip are suitable Radishes for this sowing. The pits or frames may be employed without bottom heat for Potatoes or Radishes, the only difference will be in the time of the crops coming into use. Cold frames containing a few inches of rich soil are very useful for raising early crops of Carrots, Early Nantes being one of the best; sowing in alternate rows with Radishes 4 inches apart, the Radishes being off by the time the Carrots are grown so as to require the space. Attend to early crops of Potatoes with the needful earthing as required, before giving which afford a good watering with weak liquid manure at 65° to 70°. Radishes, Carrots, &c., in frames should also have water as needed, applying it on fine mornings and between the rows; tepid liquid manure will be an advantage to crops that are somewhat advanced. Thin the plants to about 2 to 3 inches apart, and give air abundantly when the weather permits, drawing off the lights when the sun is bright and the air mild. Cauliflowers in frames and under handlights should have the soil lightly pointed over, admitting air abundantly on all favourable occasions. Afford French Beans copious supplies of water or tepid liquid manure, making successional sowings as required. Keep up the supply of Asparagus, Rhubarb, and Seakale. Where material is forthcoming these crops may be very successfully forced upon the ground, the two latter being covered with pots or other contrivances to admit of room for growth, and then covering them with fermenting materials. Where Asparagus is forced in permanent beds these should now be started, taking out the spaces between the beds and filling with hot dung, covering the beds with a frame having glazed or wooden lights or shutters, glazed lights being best, requiring, however, protective material over them in frosty weather and at night. Tomatoes, Capsicums and Celery, pot off singly as soon as the plants are ready, or Celery may be pricked out in frames if preferred. Keep the plants near the glass in a house having a temperature of 60° to 65°. Peas and Beans which were sown for transplanting ventilate freely when the temperature is above freezing point, so as to have them well hardened off preparatory to planting out. Sow Mustard and Cress as often as necessary to maintain a supply, introducing fresh roots of Mint and Tarragon to heat as required, and place roots of Chicory in the Mushroom house.

The outdoor department is in a backward state. See to the firming of soil around Lettuces and Cabbages, if necessary filling up blanks in the early plantations of those crops, hoeing and earthing up when the soil is favourable. The ground intended for Parsnips, Onions, Carrots, and other root crops should be made ready without delay, remembering, however, that harm is done by working the soil when it is in a wet state. Most garden soils are sufficiently rich for these crops, trenching being all that is required, though some gardens are not overburdened with manure, as some proprietors or their agents begrudge every shovelful that finds its way to the garden, it being wanted for the grass land or farm; but it does not occur to them that something more than the quantity of manure employed in ordinary farm culture is necessary to produce high-class vegetables. If the ground was trenched and manured in autumn it will only require forking over now. We grow our root crops after Celery, the manuring and earthing process bringing the soil into good heart and tilth. After making the soil level we give a dressing of soot and lime (about a peck of soot and half a bushel of lime per rod), pointing it in. Wood ashes are an admirable dressing for root crops: a bushel per rod is a fair dressing. The ground can hardly be made too firm for Onions. Parsnips, Carrots, &c., also do better when the soil about them is moderately firm. Parsnips should be sown forthwith in drills 15 to 18 inches apart, and Onions as soon as opportunity offers; for large bulbs the drills should be a foot apart. If the Onions are grown in beds the rows may be 9 inches apart, growing a row of Lettuces in the alleys. If large bulbs are wanted of autumn-sown Onions of the Tripoli varieties, transplant on richly manured ground, and those left in the seed beds should be moderately thinned out so as to come early into use.

Mushroom House.—One of the most fatal errors in the formation of Mushroom beds is employing too stale, too moist, and too short material, all being conducive of speedy decomposition. Mushrooms do not grow amongst thoroughly rotten substances, succeeding only upon and amongst fibrous particles. Slowly decomposing materials produce a steady heat of long continuance; therefore do not allow a greater amount of fermentation than is requisite to dispel excessive moisture. The materials are best placed on the site they are to occupy when made into a bed, allowing them to sweat themselves down, by which means the bed will be very firm when rammed down. In the course of a few days, sweating being at its height, tread the bed well, and then with a heavy beater beat the materials together as closely as possible. The bed when finished should be from 12 to 15 inches deep. Insert the bulb of a thermometer 3 inches beneath the surface, and when the temperature falls to 75° insert pieces of spawn about 2 inches square in holes at 9 inches apart every way, closing the material firmly about them, covering with the same material about an inch, but no more, beating the bed well after the spawn is inserted. In about a week the bed may be earthed. Nothing is better than rich turfy loam with the turf reduced and chopped up moderately small. It should be sufficiently moist, so that it can be beaten into a firm mass, afterwards smoothing it with the back of a spade, watering lightly if it do not smooth without. The depth of soil should be a little over 2 inches, which will beat down to little more than half. In from a month to six weeks the buttons will appear. Water lightly, and if need be repeatedly, with water of the same temperature as the house, so as to bring the bed into a fairly moist state, in which it must afterwards be constantly kept, a good atmospheric moisture being maintained

by sprinkling the paths, walls, &c. Avoid applying the water directly over the Mushrooms. The temperature should be maintained at from 55° to 60°. Beds that have produced Mushrooms for some time and are now on the wane may, provided the drainage be good and the material not too greatly decomposed, have the waning vigour resuscitated by giving them a good soaking of water at a temperature of 90° to 100°, adding a pint of salt to every six gallons of water, well stirring so as to have it dissolved before use.

FRUIT HOUSES.

Figs.—The earliest forced Figs in pots plunged in bottom heat will require water abundantly, applying it at the same temperature as the bed, or 70° to 75°, and alternating with liquid manure. The temperature should be maintained at 60° to 65° at night, admitting a little air at 70°, but not so as to lower the temperature, closing at 75°, and if the temperature rise to 80° all the better. If a second batch in pots is required the trees may now be started, and they will form a succession. A bed of leaves so as to afford a slight warmth at the roots is an advantage, sprinkling the trees two or three times a day, maintaining a temperature of 50° by artificial means at night and 65° by day with sun. Thin the fruit in the early house so soon as the best placed and most promising can be decided upon for the crop. The thinning should be done some time before the last swelling commences. Trees permanently planted out and started in January will be making good growth, and should have the points of the shoots which issue from round the base of the terminals pinched at the fifth or sixth leaf. Attend to the tying-in of the young shoots to the trellis as they advance, thinning out where too crowded. Keep the night temperature at 55° to 60°; when it reaches 65° in the day by artificial means admit a little air, increasing the ventilation with the temperature and reducing it in like manner, closing at 70°, syringing twice every day, and otherwise keeping up a genial atmosphere.

Cherry House.—Continue the ventilation, temperature, &c., as directed in our last calendar. The delicate and beautiful clusters of flowers will soon be expanded. If there be the least trace of aphis on the trees fumigate before the flowers are fully open. Artificial impregnation will need to be resorted to when the pollen is ripe, selecting bright sunny days when the house is very freely ventilated, applying the pollen to the stigmas with a camel's-hair brush. If bees appear upon the scene all the better. Damping is still necessary once or twice a day, avoiding, however, a confined atmosphere, leaving a chink of air on constantly. If the border needs water afford it, not neglecting trees in pots for that element.

Melons.—The cold and dull weather since the thaw has not been favourable to the growth of the young plants, and those first sown may not as yet have been planted out. In the Melon house a ridge the whole length of the bed, about 2 feet wide at the base with the top flattened so as to give a depth of 10 to 12 inches, is preferable to hillocks, the soil being made rather firm; and when warm the plants may be turned out, firming the soil well about the balls, and raising it to within half an inch of the seed leaves. The plants may be put out 2 to 2½ feet apart, the leading or primary shoots being taken up without stopping until two-thirds the distance they are intended to travel is reached, then pinch out the point of each. When three or four lateral joints have been made the points should be taken out. Some varieties will show fruit on the first laterals, and as early Melons are a consideration let them remain, taking out the point at a joint above them. To allow all the laterals to remain would very much overcrowd the foliage, therefore rub off whilst quite young every alternate one. After the stopping of the first laterals the succeeding growths will show fruit at the second or third joint. The growths should be trained thinly and regularly, so that every part of the surface is evenly clothed with foliage and fruit. In pits and frames with the shoots trained over the surface of the bed, the plants, being stopped at the second leaf, will produce two shoots, and these in turn being stopped will result in four shoots, two being taken to the front and two to the back of the frame. Besides these a number of others will appear near the collar of the plant; these should be rubbed off whilst quite young, and do not encourage any laterals nearer the stem than 6 inches. This will keep the collar clear. Stop the principal shoots when within a foot of the sides of the pit or frame, and thus throw vigour into the laterals, which will show fruit at the second or third joint, stopping them at one joint beyond the fruit. The plants will require but little water as yet, nevertheless maintain the soil in a moist state, avoiding anything approaching to saturation. Sprinkle every available surface in the morning of bright days, and again at closing time or early in the afternoon. Ventilate carefully, avoiding currents of cold air. Some hexagon netting or scrim canvas placed over the ventilators will break the force of cutting winds. Maintain the night temperature at 70°, falling to 65° in the morning, 5° less in severe weather being better than seeking to maintain the high temperature by sharp firing; 75° by day, rising to 80° or 85° from sun heat, bottom heat keep steady at 80°. Shift later-sown plants into larger pots, or add soil as the plants advance, stopping those for frames at the second leaf, not stopping those for trellises, but placing a small stick to each for support. Cover the lights of dung frames with double mats at night, and see that linings are regularly attended to, renewing the old linings as required. Prepare material for making up fresh beds. Equal parts of Oak or Beech leaves and stable litter make the best beds. About a fortnight before it is desired to make the bed the dung and leaves should be thoroughly incorporated. In a few days it will be seen whether there is sufficient moisture to produce decomposition, fermentation being the result; if not turn the whole, sprinkling with water so as to moisten the mass, and when in good heat turn again outside to inside, and *vice versâ*, two or three turnings being required at intervals of about four days. The bottom heat of dung beds should be 85° to 90°.

Cucumbers.—Go over the plants in bearing once or twice a week for the removal of bad leaves and exhausted growths, thinning the shoots, stopping, and removing old and deformed fruit. Thin out the shoots if necessary, overcropping and overcrowding being highly prejudicial. In securing the young shoots to the trellis do not tie them too tightly, but allow room for development. Plants that have been in bearing for some time should have the surface soil removed and have previously warmed fresh soil added. Turfy loam, with a fourth of well-decayed manure, will answer; we, however, prefer for Cucumbers and Melons turfy loam without an admixture of manure, seeking vigour by liquid manure as may be necessary. The bottom heat should not be allowed to fall below 75° or exceed 90°, 80° being suitable, the night temperature 65° to 70°, 5° less in severe weather; 70° to 75° by day, rising to 85° from sun, closing early in the afternoon, damping the pathways, &c., on bright mornings and at closing time or early in the afternoon. Young plants will be ready for planting. Hillocks or ridges of soil should be formed as described for Melons. Afford the like temperature, &c., as advised for the older plants. If the sun be powerful and the plants show indications of flagging shade them for a few days. Attend to dung-heated frames with linings as required, protecting at night as advised for Melons. Do not apply more water than to keep the plants gently moving. Red spider is showing upon the winter fruiters. Coating the pipes with sulphur and lime in equal parts is the best remedy or preventive, heating the pipes to as near boiling point as possible for a couple of hours on a calm evening, taking care that the temperature of the house is not more than 80° to 85°, and then allow the pipes and house to cool down to their regular temperature. The foliage should be thoroughly dry. The same process may be repeated the following evening and is generally effectual, the mixture being applied whilst the pipes are hot.

Strawberries in Pots.—The first batch of plants has set very fairly, considering the sunless weather. Remove all badly set or deformed fruit, leaving from four to half a dozen of the most promising fruit to each plant, and aid their swelling by liquid manure. The temperature should be 60° to 65°, advancing to 75° by day, with moderate ventilation. Avoid drying currents of air, as they injuriously affect the swelling of the fruit. Examine the plants twice each day, giving water only to those needing it, and in sufficient quantity to show at the drainage. If the pots are placed upon turves keep them duly moist by pouring liquid manure upon them, as the roots will work in the turves and support the plants. See that succession plants are kept free from aphis, fumigating if necessary before the flowers open, and if spittle fly appear remove the insect from its frothy harbour. British Queen and other late sorts may now be started, introducing, however, proportionate quantities of Sir Harry, Sir Joseph Paxton, President, James Veitch, &c., to maintain the succession.

PLANT HOUSES.

Camellias.—Plants in flower from this time forward must be shaded from the sun, or the colour will be impaired and the blooms will be of short duration. Plants that flowered early in autumn are now making fresh growth, which should be encouraged by a growing temperature of 55° at night, 10° to 15° rise by day, with plenty of moisture at the roots and in the atmosphere, shading from bright sun. Any vigorous plants with over-luxuriant shoots should have these shortened; indeed where straggling plants exist it is a good plan to head down a portion each year as they can be spared, they soon making bushy plants.

Pelargoniums as they fill the pots with roots will require more water, yet avoid overwatering or the leaves will suffer. The fancy varieties require less water than the show varieties. Keep the plants near the glass, and well tied out so as to give all the light possible. Fumigate on the first appearance of aphis. Pot Calceolarias as they require it; nothing is so injurious as allowing the plants to become rootbound. They delight in a cool humid atmosphere. Plants in 6 or 7-inch pots are useful for decorative purposes; larger plants may be had by shifting into 8 or 10-inch pots. Vigorous plants not yet showing flower are the best for growing on. Liliums place in a light situation so soon as they commence growing. Sow Cineraria seed in gentle heat. The plants will flower early next winter and be very useful.

TRADE CATALOGUES RECEIVED.

James Vick, Rochester, N.Y.—*Illustrated Guide and Seed List.*

William Thomson & Co., 3, Melbourne Place, Edinburgh.—*Catalogue of Vegetable and Flower Seeds, Gladioli, &c.*

William Cauldwell, Wantage.—*List of Roses.*

Samuel Shepperton, Prospect House, Belper.—*Descriptive List of Florists' Flowers, Border Plants, &c.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (*W. B. W.*).—You will find much useful information on popular greenhouse flowers in our "Greenhouse Manual," 10*d.* post free. (*R. G. S.*).—"Ferns and Lycopods" by Mr. B. S. Williams of Holloway will suit your client. (*S. G. S.*).—The new edition of the "Vine Manual" is in the press, and will be published shortly.

SPELLING (*J. D.*).—The correct way is Roi d'Hollande.

SOLANUM DULCAMARA (*W. C. J.*).—It grows in moist places about hedges and thickets. It is a plant of rambling twining growth with showy purple flowers, which are succeeded by scarlet berries that are poisonous.

EDGING TILES (*M. D. D.*).—They are no doubt the terra cotta tiles that are usually employed for edgings, and not ordinary house tiles.

CROSSING CALCEOLARIA AND GERANIUM (*J. W.*).—You could not hybridise a Calceolaria with a Geranium. At all events it would be an extraordinary cross if it could be effected. There are so many strange anomalies in Nature, we ought never to be surprised at anything; but we should be greatly surprised to know that you had "improved the strain of your Calceolarias by hyridising them with the Geranium."

FORCING TEA ROSES (*A. E. R.*).—The extremely dull season has been very unfavourable for the growth of Roses under glass, and possibly you have also maintained an unnecessarily high temperature. If the plants have not made much growth and there are good dormant buds below those buds that have started, you may cut the plants down. They require a very light position, and a temperature to begin with of not more than 45° at night, with a rise of 5° in the day by fire heat, and 10° or 15° more by sun heat.

VARIEGATED GERANIUMS FOR BEDDING (*Idem*).—The best silver-edged varieties are Princess Alexandra and Miss Kingsbury, a very dwarf variety for edgings being Little Trot. The best creamy white is Flower of Spring. The best dark-zoned Golden Bicolors for beds are Maréchal McMahon and Black Douglas, a good dwarf variety for edgings being Golden Harry Hieover.

DESTROYING SCALE ON PEAR TREES (*S. B.*).—If you mix paraffin and water in equal parts and apply it to the branches we think it will destroy the scale. Apply it with a brush, agitating the liquid each time you dip the brush into it, or the oil will float on the surface of the water. Do not apply it to the buds.

CORDYLINE INJURED BY FROST (*Sussex*).—Although Cordylines have passed safely through some recent mild winters they cannot be regarded as hardy plants, and many valuable specimens have been destroyed by the late severe frost. If the stem of your plant is sound, which it possibly may be near the ground, it may push fresh growth, but a long time will elapse before the succeeding growth, if any, forms such a fine plant as the original. If the plant is cut down to where it is uninjured, potted, and placed in heat, it will be more likely to break than if left in its present position.

JEFFERSONIA DIPHYLLA (*S. R. W.*).—This plant, we believe, is scarce, and we do not know where you can obtain it. Can any of our readers state where a plant or seeds can be purchased?

DISSOLVING BONES (*Amateur*).—Place 5 cwts. (or 12 bushels) bones on an earthen floor, surrounded by a rim of ashes; pour on as much water as the bones will suck up, and then pour on 2 cwt. of sulphuric acid. It will boil somewhat violently for a while; when this has subsided it will get tolerably solid, and the ashes and all may be shovelled up together, and will be fit for drilling in a day or two.

TURNIP CULTURE (*L. L.*).—Your very stiff and cold soil may readily be brought into condition for the cultivation of Turnips and other vegetables by drainage, making drains of 2-inch pipes 30 feet apart and 4 feet deep with a good fall; by heavy dressings of manure such as a stable, pigstye, cowshed, or fowl house affords, and by mechanical division, which is effected by mixing a plentiful dressing of coal ashes with it. In addition to this take especial care to dig every bed and border immediately after a crop is cleared off, and you will soon convert your soil from its sodden inert condition into a friable fertile substance.

PEARS SHRIVELLING (*Idem*).—Many sorts of Pears ripen best in a heated room. If you have more than one sort and all have shrivelled, it is no doubt caused by the excessive amount of *dry* heat caused by the fireplace beneath the room. A thick layer of sawdust on the floor and roof ventilation will correct this. Your Grape Vines must be taken into the house the moment the buds afford indications of swelling. They should be examined daily now. Cut your Box edging after it has fairly commenced growing. If cut too soon the succeeding young growth is often much injured by late spring frosts.

CARPET BED (*H. C., South Wales*).—The end circles of the bed figured on page 97, and the chain round them, were planted with Alternanthera amœna. The line No. 6 was planted with Golden Feather, and the margin No. 7 with Sedum glaucum. The Mentha referred to is the Gibraltar Pennyroyal. It is a close, low-growing, bright green hardy plant, and the most useful green carpet plant in cultivation.

ANTS EATING FRUIT BLOSSOM (*J. D. Lyon*).—When we find ants on plants and fruit trees we always have a suspicion that there are insects lurking amongst the flowers and foliage. Syringe your trees well with quassia water made by boiling 4 ounces of quassia chips for fifteen minutes in a gallon of water, then strain and add 3 gallons of water, and with this syringe the trees. This will destroy insects, and will further render the blossoms distasteful to the ants, which are unfortunately addicted to nibbling off the pistils of the flowers. If you further dust the trees when they are moist with tobacco powder or snuff, you will the more effectually banish the ants.

ROSES AND CLIMBING PLANTS FOR NORTH AND EAST WALLS (*R. S.*).—Roses of the Ayrshire, Boursault, and Evergreen types will answer well, also Cydonia japonica, Jasminum officinale, Berberis Darwinii, Berberis stenophylla, Cotoneaster Simmondsii, C. microphylla, Lonicera flexuosa, L. brachypodum, L. gratum, Ligustrum japonicum, Escallonia macrantha, and Cratægus pyracantha. We are unable to answer your other question.

SOWING SEEDS (*A New Subscriber, Ireland*).—Seeds of Celery, Cauliflowers, &c., that are raised under glass, are frequently sown much too thickly. It should be remembered that seedlings raised under glass do not have nearly the same amount of light and air as those raised out of doors, consequently the thin sowing of seed in pots and pans is of very great importance.

ROSES UNDER GLASS (*Tyro*).—Your unheated house is quite suitable for Roses. We have planted all the varieties you name and others in a somewhat similar structure lately. If you wish to devote the house exclusively to Roses we advise you to plant a Maréchal Niel at one end, and a Gloire de Dijon at the other end of the back wall, and train them over it; and to plant Niphetos, Safrano, Céline Forestier, Marie Van Houtte, and Belle Lyonnaise, to be trained up the rafters. Dwarf-grown plants of the whole of these varieties might also be planted in the centre of the house. Ours are all planted inside in a compost of good loam and rich cow and horse manure. The Roses named will succeed well on various stocks or on their own roots. If you state your requirements to any Rose-growing nurseryman who advertises in our columns he will supply you with plants suitable in every way. Planted now they will bloom from May onwards. In future years they will bloom earlier, but you can scarcely expect them so early as February unless you employ fire heat.

PIPING FOR ORCHID HOUSE (*Rus*).—You do not state the width of the house, but if it is not more than 10 feet two rows—*i.e.*, a flow and return 4-inch pipe all round the house will be sufficient heating surface, but it is well to err on the side of having too much rather than too little piping. If the house exceeds the width named, and especially if it is in an exposed position, four rows of piping will be needed. The "Heating Manual" is out of print.

CLEMATISES IN POTS (*X. Y. Z.*).—The old shoots should be thinned out, and the ripened growths of last year cut back to well-ripened wood and plump eyes. The size of the trellis and plant will determine the number of eyes that are needed for producing growth to cover the trellis fully. Prune the plants at once. The form of trellis is not material; it may be balloon or cone shaped. It is not always necessary to uncoil the plants, except when larger trellises are required, yet it is well to unloose and re-arrange the branches annually.

PAINTING FRAME (*O. G. Roberts*).—Presuming the frame is new a good dressing of creosote, as advised by "OBSERVER," would be the best preservative, afterwards painting with zinc or white lead paint. It is often impossible for us to reply in the same week's issue to letters that are received late.

GLAZING WITHOUT PUTTY (*H. C. Ogle*).—There is no drip when the work is properly done, and nothing to interfere with the fumigation of the houses when required.

COMPOST FOR GERANIUMS (*H. H. R.*).—Turfy loam—the top 2 inches of a pasture pared off with its turf where the soil is of medium texture, neither heavy nor light, laid in a heap for a few months to reduce the turf, and then broken up moderately small—adding a fifth of thoroughly decayed manure and a sixth of sharp sand thoroughly incorporated. Drain the pots well and pot rather firmly. A tenth of bone dust may be added with advantage.

BONE DUST FOR PLANTS IN POTS (*Idem*).—For a majority of plants one-tenth of bone dust well mixed with the loam or the other ingredients is a sufficient quantity. It is suitable for mixing with loam for all plants requiring that description of soil—such as Cinerarias, Calceolarias, Fuchsias, Pelargoniums, Roses, &c. For Chrysanthemums it may be used to the extent of one-sixth of the compost.

VINE STEMS CRACKING (*An Old Subscriber*).—It is not unusual for the stems or rods to crack when they become old, and probably arises from their having had the bark closely peeled off annually for a lengthened period, which unduly exposes the stem to the drying influences of the atmosphere. We have seen Vines with the stems considerably cracked produce good crops of serviceable fruit. It would be desirable to not partially but wholly lift the Vines, and lay the roots in an entirely new border thoroughly drained, replacing the old rods by fresh canes taken from near the base of the Vines; but with such aged Vines it would probably be more satisfactory to plant young Vines.

TREES AND SHRUBS FOR ORNAMENTAL GAME COVERTS (*H. C. Willis*).—It is difficult to establish a game covert where ground game is numerous. The only trees and shrubs they do not appear to relish are Corsican Pine, White American Spruce, Birch, Alder, and Rhododendrons. We should plant with a view to a mixed hardwood plantation, with a goodly amount of evergreens for undergrowth. For instance, plant Oaks at 20 feet apart in the back row—or, first an Oak followed by a Norway Spruce, then Ash, Norway Spruce, and Oak, which being respectively 5 feet apart will leave the Oaks at the distance named. Instead of the Ash, Holly or Portugal Laurel may be planted, which will leave the trees ultimately Oak and Holly (or Portugal Laurel) 20 feet apart but 10 feet from tree to tree. In the next row, 5 feet from the last, plant Larch and Rhododendron ponticum alternately, the Larch ultimately coming away after serving the purpose of shelter. The next row you may plant with Scotch Fir, Hazel, Norway Spruce, Evergreen Privet, Austrian Pine, Sweet Briar, Bramble, Corsican Pine, Berberis Darwini, and so on. Next row Larch alternating with Rhododendron. The next row will be hardwoods, say Elms, at 20 feet apart, with Sycamore or Horse Chestnut midway, and Norway Spruce or Scotch Fir between the Elms and Sycamores or Horse Chestnuts. In place of the Sycamores or Horse Chestnuts Yews may be planted. The next row is a repetition of the one preceding the last, and so on back to the first row, which will afford an useful plantation and make an admirable game covert. Towards the margin, or point nearest the house, we should plant more ornamentally—Scarlet Oaks, Purple Beech, also common Beech (the last of which

pheasants are very fond), Mountain Ash, Thorns of sorts, Bird Cherry, &c.; having also masses of Rhododendron, common Laurel, Mahonia aquifolium, &c., so as to produce an agreeable effect, not omitting Double Whin and Broom of sorts, which have a fine effect in early summer. Planted at 5 feet distance apart 1742 trees or shrubs are required per acre.

PLANTING GROUND NEAR POOL AND ISLAND (*Idem*).—If there is any rising ground near the pool plant that with Scotch Firs and Austrian or Corsican Pine, but do not introduce them to low ground. Any headlands or projections plant with Birch, common as well as the Cut-leaved; and hollows plant with scarlet Dogwood backed with Alder and Poplar, the Silver-leaved being very fine, also the Gold-leaved Canadian; the Scarlet Willow, Golden, and Royal Willows are suitable. Plant in masses, leaving plenty of grassy spaces from which the birds can take flight, introducing in such places batches of Pampas and the coarser Grasses, not omitting Sedges, &c., in the water near the margin.

EUCHARIS AMAZONICA NOT THRIVING (*K. W.*).—From the weakness of the bulbs and their readiness of affording offsets we do not think you have the right variety. We have a dozen plants of the type you describe, and they have not produced as many flowers during that number of years. They will go to the rubbish heap. Our other plants flower three or more times a year. There is a great difference in the size of the leaves and bulbs of the two varieties, and the smaller sort produces offsets in profusion. The plants do not like lime, nor to have any part of the bulbs above the soil, they requiring to be buried 2 or 3 inches deep.

LAPAGERIA NOT THRIVING (*Idem*).—We are unable to account for the plants not thriving, but think it arises from watering with the lime water and probably insufficient supplies of water. The Lapageria succeeds in low situations, delighting in moisture, but not stagnant, and should not be exposed to the direct solar rays, yet should have plenty of light.

GLOBE ARTICHOKES (*G. O. S.*).—They do not produce nearly so freely when planted every year as when left for two or three years. We prefer changing them about every fourth year to fresh ground, taking strong rooted divisions in early April, keeping both plantations that year. The old plants produce heads at the usual time, and the young plants afford a succession in late summer and autumn. We plant a few rooted divisions annually, older plants being removed in proportion. Thus we secure a supply of heads over a long period.

DISTANCE FOR PLANTING SCOTCH FIRS (*Warwick Subscriber*).—Four to five feet is the usual forester's distance, less distance being allowed in poor soil and exposed situations than in good soil and sheltered positions. The trees are afterwards thinned as needed.

AMMONIACAL LIQUOR (*Idem*).—It is a valuable manure diluted with water, pouring it between the rows of kitchen garden crops, but requires care. It is not safe to use it unless diluted with six times the quantity of water.

BROCCOLI FOR SUCCESSION (*Idem*).—Veitch's Self-protecting Autumn, Cooling's Matchless, Leamington, and Lauder's Goshen. Sow the Drumhead Cabbage in March or early April for summer planting, and in early August for spring planting.

PLANTS FOR FLOWERING EARLY IN SEPTEMBER (*Lancashire Lad*).—Zonal Pelargoniums, Fuchsias, Liliums lancifolium or speciosum vars. L. auratum may be had by retarding, also tigrinum splendens. Of greenhouse plants Vallota purpurea, Witsenia corymbosa, Veronica Andersoni variegata, Swainsonia galegæfolia and var. alba, Erythrina Crista-galli, Crowea salignis major, C. stricta, Cassia corymbosa, and Abutilon Boule de Niege. To have plants in bloom at a certain time they require forwarding or retarding as may be required, necessitating the exercise of some judgment. Some Ericas of the tricolor section, also E. Turnbulli and E. Marnockiana, would suit, but would require to be kept cool.

SCALE AND FUNGUS ON BAY TREES (*G. M., East Barnet*).—A solution of soft soap, 3 or 4 ounces of soap to a gallon of water, and syringed forcibly on the foliage at a temperature of 150°, would no doubt remove some of the incrustation, and would also probably kill the scale; but you cannot clean the leaves satisfactorily without sponging them. A more certain mode of destroying the scale is by syringing the shrubs with paraffin water, a quarter of a pint of paraffin being mixed with 5 gallons of water, the water to be constantly agitated during its application.

NAMES OF FRUITS (*W. J. Grant*).—The fruit was so much injured in transit as to be quite unrecognisable. (*Worcestershire Vicar*).—Winter Nelis.

NAMES OF PLANTS (*M. E. R.*).—The two white Cyclamens are varieties of persicum, and the red one is Coum. The latter will do to plant in the open ground. (*C. E.*).—1, Cyperus alternifolius; 2, Nephrolepis exaltatum probably; 3, Gymnogramma chrysophylla var. (*J. C.*).—The Fern No. 6 is Adiantum amabile. We cannot name the others without the flowers.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

IRRIGATION OF GRASS LAND.

(*Continued from page 125.*)

WE must now refer to those cases where upright and quicksand springs are found. These must be tile-drained with such sized pipes as are required in accordance with the volume of water to be drawn off. These springs generally have their origin at a considerable depth, it will therefore be necessary to select the lowest outfall and strike a drain direct to the eye of the spring. When that is reached, if the soil is a running sand it will be necessary in setting the tiles to cover them with clay or the strongest soil at hand to prevent as much as possible the sand from getting into the tiles. There will, however, sure to be some enter the tiles, we therefore recommend that a half-circle or horseshoe-shaped tile be used with narrow slates to rest upon; we then find that the sand passes away quickly to the outfall When the tiles are put in the earth should be rammed down as firmly as possible, to prevent any surface water from entering the drain during the process of irrigation. In some cases land intended to be irrigated is found to bear rushes and rough sedge-like grass. This cannot be prevented by under-draining, but instead we have found that after such land (the soil being generally peaty) has been well covered with gravel or calcareous earth, that the soil becomes sufficiently firm to enable the best grasses being established; besides which, when peat soil has been thoroughly compressed with heavy dressings of gravel or earth of almost any kind the water is driven out of the sponge-like soil, and instead of being inert and comparatively valueless the soil becomes fertile and yields readily food for the finer grasses, the rushes and coarse grasses then dying out. To illustrate this matter, we have known cases where the water meadows, which were formerly very inferior in their herbage and very difficult to water with regularity, have been doubled in value where the turf has been taken off and relaid after forming the beds for watering in a new form—namely, of uniform width, and raised in the centre so as to form a quick run on and off for the water. To effect this we have seen the land carted away from the adjoining arable field, reducing it to the level of the meadow. This will afford any amount of soil for newly making the beds for irrigation by only taking so much land as arable and converting it into meadow; at the same time we have often seen that irregular boundaries and fences existing previously between the two have been straightened and rectified in various ways, very much to the advantage both of arable and the meadow land.

In nearly all the valleys where irrigation is possible or desirable we find that the highlands, either of chalk or mixed soils, usually run down to the meadows at certain points, in which case the laying-out and reforming or making new irrigating surfaces may be accomplished on a large scale if required. By laying down temporary rails at right angles from the high land the earth may be carried by trucks tipped and levelled on the exact spot where it is required to form the beds. All this work is capable of being done by contract, and many of the barren and worthless peat moors which we often see in the valleys may be at a defined cost rendered excellent water meadows. It will be a question whether turf is at hand to lay down immediately the new beds are made by taking it from the part to be newly laid out, or whether it will be best to sow the land with seeds adapted for irrigation. Upon our own property we have had special opportunities of seeing and benefiting by the effects of gravel being laid on to peat soil, having portions of meadow land which after being carefully underdrained were still comparatively barren, and having gravel taken from a brook close at hand we proceeded to cover the turf, which was very coarse, with a coating 6 inches deep; this destroyed the old turf, but without being seeded with proper grasses the sweet grasses came, and it remained fertile ever afterwards. We found this the only way to treat such worthless meadows with profit.

We have now spoken of entirely freeing the land for irrigation from water in the subsoil whether fed by springs or otherwise; it will, therefore, depend in a great measure whether the subsoil be naturally dry and composed of alluvial soil or otherwise what course shall be pursued, for when dry the watering beds will require less fall or declivity and less water also than a cold flat soil. The quantity and quality of the water also will have to be considered, because when the water is subject to floods the watering beds may lie flatter and be benefited by the deposits usually left by flood water. Still many of the old water meadows are too flat, and would pay well for being reformed, and yield a good interest upon the investment of being newly made. After having formed the water meadows according to the best system with beds at right angles with the main carriers, and formed at such a gradient as will give the water a quick and rapid flow, the average quantity of water used in such cases for irrigation has been estimated to consist of about two thousand gallons per minute per acre where an abundant supply is always available

With respect to the management, water meadows should be fed down rather bare by the early part of October or the latter part of September. The main carriers, feeders, floaters, and relief drains should be then properly cleared out, any breaches near the hatchwork should be repaired, and other places whereby water may escape, such as rat's holes, should be stopped before turning on the water. The watering should begin not later than the last week in October, by which time, if the cattle have been kept out for several weeks, there will be a short spring of grass about 2 inches high. It is very important that there should be young grass when the watering begins, in order that the water may run through the growths instead of silting it over, or the grass will be stifled and seriously injured. It is also strictly necessary that a regular flow of water should be maintained, because in those cases where the water runs slowly and lies about upon the surface it is apt to form a green slime, which stagnates the growth and renders the grass unhealthy and injurious for cattle and sheep. At the time of year above named the meadows will always be ready to receive the first flush of water caused by the autumnal rains, this water, particularly after a dry summer, being rich in alluvial matters. It often happens that some meadows are seriously injured from being fed too late in the autumn by the treading of heavy cattle or horses; in fact, in some meadows it is thought desirable not to feed with cattle at all. The most valuable food arising from water meadows is that which is available in the month of April, for it is found to be of treble the value of that which grows in the autumn, especially for sheep. In November and December copious flooding is best; in the event, however, of the season being very mild a few days' drying will not be amiss. In January, unless the weather should be very frosty, the water should be run over the land for five or six days, but when the meadows are covered with ice the water should be turned off altogether until a decided thaw occurs, for sometimes the grass will grow under the ice—at any rate it will be protected by it. Three or four days' watering will be sufficient in the month of February. During March irrigation may be continued for about three days per week until the middle of the month, when the meadows should be drying preparatory for sheep-feeding in April. As soon as the sheep have fed off a portion of the grass, as fast as portions are cleared the water should be turned over it; but during the months of May and June two days' watering per week will be sufficient, as the grass will usually be fit to cut for hay about the 15th or 20th of June. In July and August the water should be thrown over the meadows sparingly; one or two days per week will be sufficient until the second crop of grass is fit to cut. It sometimes happens that the early grass is not required for sheep-feeding in April; it will in that case be held on for hay, and it will give two most abundant cuttings, each of them being much earlier than in the case of spring feeding.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The heavy rains which have prevailed in various parts of the kingdom since the frost broke up will still enable wheat to be sown on the home farm after the weather becomes dry enough. Without a sufficient rainfall the wheat would have gone in with the land too light, and this would have been very much against it, because spring-sown wheat is apt to be overrun with weeds in such a case. The horses must now at every opportunity be at work in earnest, for the time of year for sowing peas and beans, planting potatoes, &c., has arrived, and must be proceeded with at all periods of suitable weather. Peas should be sown as fast as the land is ploughed, on the same day if possible; and upon small or home farms of moderate acreage, say from fifty to a hundred acres of arable, it will be found a great advantage to use a one-horse drill capable of drilling corn and pulse, also turnip and mangold seed, with manure. We used a drill of this kind for a period of thirty years with great advantage, because we could drill any crop as fast as the land was ploughed, and this we have found of immense importance upon hilly land, and also because when the weather is adverse—either too wet or too dry—the drill should always follow the plough. We have seen good seasons lost by waiting to drill a large field or portion of field with the heavy wide drill. The drills vary in size, but as long as they can be drawn easily with one horse that is all we require. In drilling turnips or other root seeds, if a large quantity of manure is required to be applied the manure will have to be filled in oftener; but we do not see the object of drilling large quantities, except in the case of drilling screened chalk or ashes, when twenty bushels per acre will be required, and we have often drilled this quantity with the one-horse drill by filling it oftener. With this small drill we can drill two wide lines for root seeds and three narrow lines, the drill covering about 4½ feet of ground.

Hand Labour will now consist of trenching in the meadows and paying strict attention to the irrigated meadows, and see that all the surface is flooded alike as near as can be done, but we find this very difficult in many cases where the meadows are badly laid out. The trenching in the ordinary meadows would be best dispensed with altogether, because it is a constant expense to scour them out annually, and whilst kept open they are liable to be trodden in by cattle. We have, therefore, to recommend what we have done on our own land—that is, to pipe-drain the trenches and fill them in level; this not only saves the expense of keeping them open, but it enables the mowing machine and hay-making machine to pass over the land freely and without impediment to the carting of hay, &c. The dairy cows will now, many of them, be forward in calf. Those near calving should be separated at night time and placed in a good roomy box, so that the herdsman may give that attention which is so necessary, and when the calf is expected a regular observation of the cow should be made every few hours. Seed corn and early potatoes may now be purchased in readiness for the first season of the year. We can testify that when a crop of stubble turnips is to follow a cereal crop the white Canadian oat offers the best opportunity for securing it, as it comes off the land much earlier than most other grain crops. Peas, too, should be of the early varieties. We know of no Pea better than the Early Dun, as it ripens early and is a good cropper, and the haulm furnishes excellent fodder for horses and cattle in the winter months. The blue peas are early and good croppers, but the haulm is not relished by cattle. Growers near towns where peas can be sold green in the pod will do well to avail themselves of the chance for sowing, but the picking takes up time and labour; therefore the peas should be sold for ready money on the land, the purchaser doing the picking. It is too great a disturbance and displacement of the labour on the home farm to make it profitable to sell green peas except under peculiar circumstances. Summer tares may also now be sown, and a few oats sown with them, the oats often protecting and preventing blight from injuring the tares.

The shepherds will now be full of work, and should have assistance whenever the arduous duties attending their calling require it, for it is certain that in case any neglect of the flock occurs through the lack of time or opportunity on the shepherd's part it is pretty sure to tell adversely upon the flock, whether of ewes and lambs or of dry store sheep. The root land will now be occasionally so wet that it may be desirable to remove the stock on to old lea or pasture ground for a few days. This may answer for a flock of wether sheep or tegs; but we cannot approve a change of that sort for ewes and young lambs, because just as the lambs are beginning to eat from the troughs and cages removing so much disturbs their habits of feeding as to seriously endanger their well doing.

LANGSHANS.

As you were good enough to allow a few observations of mine on Langshans to appear in a recent number of your Journal, and as from the communications I have received these appear to have excited some interest, a few remarks on the same subject suggested by a visit to the late Birmingham Poultry Show may not be uninteresting.

At the late Poultry Show at Birmingham it appeared to me that, however unwilling the breeders of Black Cochins may be to allow that there is any difference except in name between their birds and Langshans, most of the exhibitors of Black Cochins clearly manifested their appreciation of the qualities of the Langshan by showing birds only with a considerable amount of the blood of the latter in their Cochin veins. I could only find two cocks in the Black Cochin class with any approach to a just claim to purity of breed as Cochins, and these two were in my opinion not free from an infusion of Langshan blood. All the others in the class which I had time to examine were at least half-bred Langshans. Their owners may or may not have been aware of their true breed, but the facts are as I have stated them. This may be called a cool assertion, but I write about that of which I have a practical knowledge.

A Black Cochin till recently differed scarcely at all, except in colour, from any other Cochin. It had the same short, yellow, profusely feathered legs, the yellow in the dark varieties being a greenish yellow shading into black instead of the bright yellow of the lighter-coloured birds, yellow being the essential basis of the colour of the legs of every variety of Cochin. These are now universally condemned as table fowls in consequence of their jaundiced appearance and the disproportionate size of their legs and thighs, being only looked upon as fancy birds—good winter producers of eggs, no doubt, but otherwise only useful to cross with common varieties in order to increase their size, the yellow skin too frequently remaining an objectionable feature in the cross-bred birds.

It is a remarkable fact that since the introduction of the Langshan the Cochin type in Black Cochins has rapidly diminished. At the Show in 1877 it prevailed at Birmingham much more than it did in 1878, a mixture of the breeds by crossing having evidently been extensively carried out; not by the breeders of Langshans, they know too well the quality of their true-bred birds to allow the degrading influence of such a cross in their yards. Among the Langshans at Birmingham in the late Show there was one pen that struck me by its remarkable Cochiny appearance, and there was one exhibitor who showed both Black Cochins and Langshans, as he severally called his birds. The

same exhibitor did exactly the same thing in 1877, no doubt in good faith believing the two breeds to be essentially identical, as anybody who has unwittingly got hold of half-bred birds may easily persuade himself. I quite believe the Black Cochin has been greatly improved by crossing with the Langshan, as from the distinguishing characters of the two birds it would necessarily be.

In comparing the two breeds, it is not only as large, handsome, hardy fowls and good layers, but as table fowls with delicately white and tender skins, breasts well covered with choicest meat, legs and thighs in subordinate proportion when dressed, such as to delight equally the farmer's wife who is proud of her poultry, and the housekeeper upon whose table it is destined to appear, that the Langshan will find a place—a place which as a test of quality no Cochin will ever approach.

As according to certain critics the purity of the breed of the Langshan is not now disputed; as he is no longer considered a cross-bred bird, a Cochin with something else; as he is allowed to have certain valuable qualities, though undistinguishable; and as he is still accused of being only a Black Cochin with legs as long as a Malay's, it may be well briefly to contrast the more obvious characteristics of the two breeds side by side:—

THE COCHIN.	THE LANGSHAN.
Comb and wattles small; in the hen very small, scarcely rising above the feathers of the head; always single, erect.	Comb and wattles large and very brilliant; in the hen comb sometimes erect, sometimes falling over to one side as the Black Spanish hen's, single, double, or rose-combed.
Fluff abundant, the tip of the tail feathers just appearing through it.	Fluff but little, the tail feathers standing several inches out of it.
Legs large, short, profusely feathered, always yellow, but rarely long and lightly feathered.	Legs neither large nor short, not too long nor profusely feathered, sometimes featherless, never yellow, rarely short, and rather freely feathered.
Pectoral muscles small, not sufficiently developed to enable the bird to fly.	Pectoral muscles well developed, enabling the bird to fly.
Thighs very large, and disproportionate to all other parts.	Thighs not too large, nor disproportionate to other parts.
Breastbone short, with but little meat upon it.	Breastbone long, with abundance of meat upon it.
Narrow across the shoulders.	Very broad across the shoulders.
The hen a determined sitter, very difficult to prevent.	The hen a very light sitter, very easily prevented.
The skin of the Cochin is yellow, coarse, and jaundiced-looking when dressed for table.	The skin of the Langshan is delicately white and fine, and very tender, easily torn in plucking.

The skin of the Cochin in fact, like the skin of the Negro, indicates a tropical or subtropical region as its home, while the skin of the Langshan, like the skin of the Saxon, affords evidence of a temperate or cold climate as being its natural habitation.

In conclusion, if such marks of difference as above mentioned are not enough to establish a distinctness of breed, there can be no distinction between a Malay and a Game, or a Bantam and a barndoor fowl. Still there are other distinctions which will ultimately appear in public. Everybody knows that Dorkings are single-combed and rose-combed, if not occasionally tufted; so are Langshans in their own country, as shown by the occasional importation of such birds by Mr. Croad. I have some pure-bred rose-combed Langshans, but I never saw a pure-bred rose-combed Cochin, nor do I believe that anybody else ever did.—JOHN GABB, *Bewdley*.

POULTRY EXPERIENCES.

I FEEL much obliged to your correspondent "COL. B." (page 126) for his favourable opinion of my poultry report, and in compliance with his wishes have much pleasure in giving a further statement of the cost of houses and runs.

Mine is a detached villa residence standing in about one acre of ground. The fowl houses were built against an existing wall facing south-east, on a slight slope and in a warm corner. The first house, with run and dusting-shed complete, cost £10 8*s.*; the second cost £9 3*s.*, and four coops with sparrow-proof wire runs, 6 feet by 3 feet each, cost £2 7*s.*; total £21 18*s.*

I can answer "COL. B.'s" third query—at what cost eggs can be produced—pretty accurately. Taking the first six months I had 924 eggs, and I paid for food during that period £2 10*s.* 8*d.*; so their cost would be under 8½*d.* per dozen, or eighteen for a shilling.

Your correspondent will pardon me for saying that I do not think 17*s.* 6*d.* fairly represents the actual cost of the twenty-two birds in stock; for amongst them there are fifteen young birds hatched in April which have enjoyed eight months' good feeding, giving only a return of eggs during the last month (December); and to arrive at their actual cost the amount of food they have consumed should, I take it, be debited against them. Although "COL. B.'s" figures show their cost under one shilling each, I am quite certain they cost much more. I hope he will kindly give the result of his working next April.

Allow me to point out two errors I appear to have made in my report at page 107—viz., in the eighth line from the beginning, instead of "hatched eight" it should be "hatched seven;" and in the column "chickens reared" in March, instead of "two" it should be "three."—F. C. TAYLOR.

VARIETIES.

DO BEES EAT POLLEN?—"G. S." suggests that, with a view to a more complete elucidation of this mystery, some of the chief apiarians submit "the sort of jelly" on which bee larvæ are fed to a good analytical chemist, and communicate the result of such analysis to the Journal for publication.

—— "J. S." says, "I noticed in reading Mr. Taylor's poultry report an item—viz., value of manure, 10*s.* As I am desirous of obtaining a quantity of fowl manure it occurred to me that Mr. Taylor, or some other reader of the Journal, would tell me what would be a fair price to pay per bushel for that article free from sand or ashes."

—— AT a meeting of the Committee of Management of the Hunts Agricultural Society held on the 15th inst., the date for holding the general Show was altered from the 16th to the 11th of July.

—— A CORRESPONDENT, J. Kay, writing of the poultry experiences of F. C. Taylor, states that he would be glad to see a similar report on the result of cow-keeping.

BEES BREEDING IN WINTER.

THE present winter has been one of the greatest severity since 1838, and we have not yet seen the end of it. But notwithstanding the severity of the weather our bees are breeding fast. On the 13th of January I examined a hive which I dug from below a snow wreath, and judge my surprise when I found five frames containing large patches of brood. I at once took the hive indoors in order to keep them more comfortable. On the 7th inst. I examined several other hives and found them in good condition, quite free from damp, &c., and every one of them containing brood. One Italian swarm has, I am confident, bred largely during the whole of the winter months. Mr. Shearer and others who have seen my hives are very much interested in the matter. The bees were not stimulated by feeding, but just left to work according as they had a mind. Perhaps the hives themselves have something to do in the matter. In the first place they are, to my mind at least, perfect: they are warm and comfortable and properly ventilated. They are the kind of hives which I have always considered the best and most complete, and are manufactured by Mr. Abbott of Southall, London. Of course, my hives are a little larger than Mr. Abbott's, and the frames are not quite the same, being bottomless—*i.e.*, having no bottom rails; the roof is also in two parts. In every other respect they are just Abbott's standard hives. The question is, If bees breed better and faster, and without being stimulated, in hives of the above stamp, surely there are a great many hives of inferior construction? The question of hives, their size and construction will, I trust, be much better understood. For instance, hives suitable for stocks and swarming are not suitable for supering, the latter should measure about 9 inches deep, and the former about 11 inches; 9 inches is quite sufficient for breeding purposes, as it is most desirable to have all the surplus honey stored in the supers. Both shallow and deep hives should be of a standard size from back to front.—A. COCKBURN, *Aberdeenshire*.

[We have ourselves found to our great surprise within the last month large patches of brood far advanced; and this was in an ordinary straw skep, which was most unfavourably placed. We do not think that this is attributable to any particular hive, but may probably be a matter of more frequent occurrence than we are aware of.]

MODERN BEE MANAGEMENT.—No. 4.

SUPERS.

DURING the last few years there has been quite a revolution in the methods of obtaining surplus honey. Formerly, and still among bee-keepers of ancient ideas, the great bulk of the honeycomb taken for sale or home use had to be cut from the interior of the hive in which the bees had lived, worked, and bred for at least a great part of one season. The inconvenience, not to speak of the impurity and wastefulness, of the plan, led to the idea of separate receptacles for storing virgin honey. These—whether placed above, under, in, or beside the hive—we shall for convenience call by the general name of supers. They may be segments of the hive itself, as in the Stewarton, or may take the form of glass globes or vases, straw caps, fancy wood and glass boxes, plain wooden frames, or the ruder shifts of the thriftless bee-keeper—a blacking box, a flower pot, or a discarded hat. But although bees will accept almost any sort of storehouse, from a chimney pot to the dried-up carcase of a lion, it does not follow that we are to be indifferent in our choice. The amateur or fancy man may devote his efforts to getting gorgeous palaces of crystal

filled with pearly combs, and the competitor at shows may indulge in monster cabinets, but the commercial bee-keeper must study the fashion of the time and the demands of the market and aim at what will pay best.

Now-a-days the universal verdict is in favour of neat small packages. The large boxes had to be subdivided into smaller boxes, and these again into single comb sections as they are now called. To such an extent has this subdivision been carried that in Paris one may buy neat pasteboard sections done up in paper lace weighing only 4 ozs. each. The other day I had a letter from a gentleman requesting a sample of the sections I approve of, in which he says, "I have been in for large supers, but I find they are not so saleable when filled. I had two years ago at the Alexandra Palace one that weighed 101 lbs., and took the first prize, but had great trouble to get rid of it. I shall never try for a similar one again. I had sections last year, and all sold at good prices. I hope to have more this year."

I will enumerate what I consider the main requisites of a good super.

1st, It must be of material cleanly in appearance and pleasant for the bees to work on.

2nd, It must allow of the bees working throughout with little or no division of the cluster.

3rd, Yet, itself must be capable of division into neat sections of 1 or 2 lbs. each.

4th, These sections must be such that they can be placed either on the hive or inside of it.

5th, They must give facilities for more or less storage room as the season and strength of the stock may require.

6th, They must allow of being packed for transit with little risk of damage.

7th, They must permit of being glazed for show, and sealed against dust, damp, or insects.

8th, They must be such that the bees can easily be dislodged from them.

9th, They must be simple in construction, easily handled, and moderate in price.

So far as I can see, the accompanying engraving (fig. 18) represents the only super that meets all these requirements. I called it the merchant super when I obtained first prize with it at Dundee and elsewhere in September, 1877. The Americans call it the prize box, because with it Betsinger and Doolittle obtained the fifty dollar gold medal at New York in October following. Each section consists of four pieces of light wood, the top and bottom bars 1¾ inch wide, the ends 2 inches. The size and proportions may vary according as combs of one or more pounds weight may be desired, but the width of the pieces as given above are essentials. Each section is a frame just right for a single comb; when several of them are placed side by side the narrow top and bottom bars leave quarter-inch spaces for the bees to pass up and down. Thus no honeyboard is required, and I might almost say no queen excluder. They can be tiered outwards or upwards to any extent. They can be made to fit four or more into a wide bar-frame and hung inside the hive. The hive that I employ was fully described on page 127, and is represented in the annexed engraving (fig. 19). The supers are such that any one may be removed when filled, and an empty one put in its place. Those removed may have the bees brushed off with a feather in a moment. Panes of glass can then be dropped between the end bars and secured by tin points or strips of gummed paper. The frames can then be packed together as tight as may be, and with ordinary care will travel anywhere or keep for years secure against damp, dirt, or vermin.

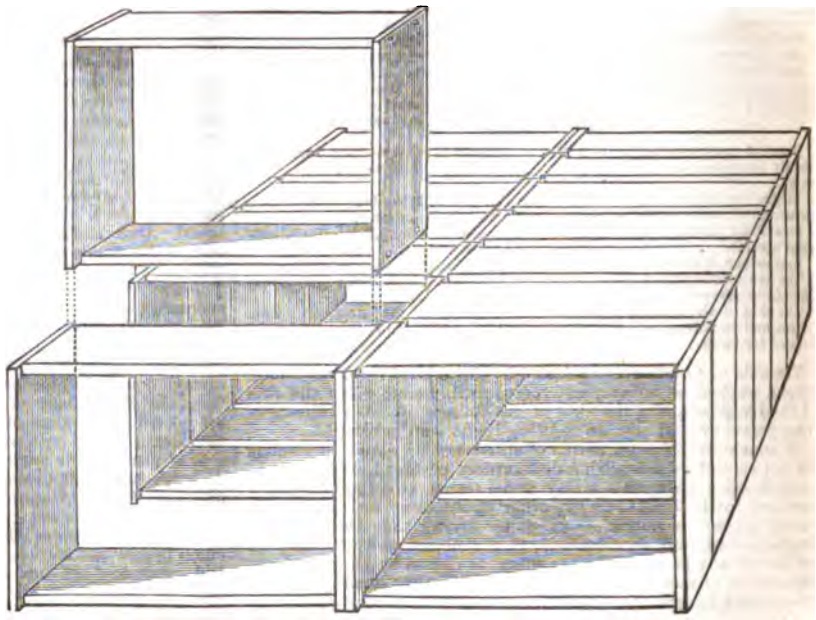


Fig. 18.—Mr. Raitt's Sectional Super.

There are, of course, peculiarities in the method of working these sections successfully. They cannot be laid on a hive in the haphazard way in which large box supers generally are. Means must be taken to insure a perfectly straight comb in each section, and inducements given to have the comb fastened to the wood on all the sides. Details of these little arts must, however, be left for future notes. Now is the time, however, for preparing the supers for use, and I shall be happy to send to all who may desire it a sample section with the necessary strip of foundation on receipt of 3*d.* in stamps.—WILLIAM RAITT, *Beecroft, Blairgowrie, N.B.*

BRITISH BEE-KEEPERS' ASSOCIATION.

THE annual meeting of the British Bee-keepers' Association was held on the 12th inst. at the rooms of the National Chamber of Trade, 446, Strand, London. The Right Rev. Bishop Tozer occupying the chair till the arrival of the President, Baroness Burdett-Coutts, who before leaving the meeting, expressed her continued interest in the Association, and her hope that its prosperity and usefulness may be extended and increased. She hoped the next time she came to the meeting she would have the pleasure of seeing a representative from a local association from every county in England.

The report having been taken as read was unanimously adopted, and the balance sheet for the past year showed an income of £282 8*s.* 4½*d.*, and a cash balance in hand of £63 6*s.* 7½*d.* The following were the office-bearers elected for the present year:—*President*, Baroness Burdett-Coutts. *Committee*, Rev. G. Rayner, Rev. E. Bartrum; T. W. Cowan, Esq.; R. R. Godfrey, Esq.; J. Hunter, Esq.; C. N. Abbott, Esq.; J. M. Hooker, Esq.; J. P. Jackson, Esq.; F. Cheshire, Esq. *Treasurer*, W. O. B. Glennie, Esq. *Hon. Secretary*, Rev. H. R. Peel. The question of the appointment of Vice-Presidents was postponed, and left for the Committee to consider and report to a future general meeting of the Association.

Rev. Herbert R. Peel, Hon. Secretary, intimated that being desirous of having the Association represented at the great International Agricultural Society, which is to be held at Kilburn this year, he had used his best efforts to bring the Association under the notice of the Royal Agricultural Society and of the Mansion House Committee with the view of obtaining prizes towards the schedule. He considered it of the first importance that the Association should be represented on such an occasion, when every description of agricultural industry would be collected from all parts of the United Kingdom and abroad; but he regretted to say his application had been made too late, and that the arrangements had been so far settled that there was no hope for his application being entertained. But being desirous that the opportunity should not be lost, he had taken upon himself the personal responsibility of offering prizes to the amount of £24, which he would willingly meet if the meeting did not approve of the course he had taken. It was unanimously agreed that the action of the Honorary Secretary be approved. Mr. Peel then announced that the next Exhibition of the Association would be held at the gardens of the Royal Horticultural Society at South Kensington on the 22nd of July. The question as to whether non-members should pay an extra entrance fee at the exhibitions was not decided in the affirmative.

On the motion of the Rev. H. R. Peel it was decided to form county associations in connection with the central Association, and to admit members of such associations to the quarterly meetings.

Mr. J. P. Jackson introduced the subject of the establishment of a honey market in London under the management of the British Bee-keepers' Association. Mr. Jackson impressed upon the meeting the necessity of establishing a honey market or depôt in London. The cottagers, he said, could not find a ready sale for their honey in the absence of such a market. If they did not get some assistance of that kind they would give up the idea of raising honey altogether. The Baroness Burdett-Coutts had given a shop and store in Columbia Market for the honey trade. If such an arrangement were carried out, pure English honey could be sold

at 1s. per lb. Several shopkeepers had intimated their willingness to sell the honey on a small commission. He would remind the meeting that whilst they were discussing arrangements for opening a home-made honey trade, hundreds of tons of American honey were being sold very cheap all over the country. No time was therefore to be lost. [Hear, hear.]

Mr. Fletcher, when seconding the motion, said that he had purchased some American honey, and he did not fear its competition. Its flavour reminded him of peppermint drops mixed with tallow [laughter]. It was, however, neatly put up, and looked very beautiful.

Mr. Hunter said that the absence of demand for home-made honey was to be accounted for by the fact that the cottagers did not make it up clean and neatly. Not one-tenth of the English honey was offered for sale in a state fit to be put before a customer in a respectable shop.

The Secretary (Mr. Peel) was warmly in favour of the proposed market, and added that he had received letters from all parts of the country approving of it.

Professor Redwood, who had at the request of the Secretary examined and analysed a sample of American honey, said he had heard that it was largely imported from California and other parts of America, and further that it was sometimes largely adulterated with glucose (grape sugar). His conclusion was, after careful examination, that no sufficient evidence existed to justify his entirely condemning the imported article as being adulterated. It lacked, however, the peculiar delicate flavour which was the most prized characteristic of the best honey. He had discovered further that bees could be taught to be adulterators of their own honey by taking up deposits of glucose which were left purposely in their way, and depositing them without preparation or alteration in the combs. The stuff was really not what we know as honey, being deficient in flavour, and not naturally obtained from plants and flowers. Still, he had not been able by the closest examination to get any chemical evidence that the sample submitted was not honey. The palate, however, could not be deceived as to the inferior quality of the American article.

The meeting adopted the following resolution :—"That the British Bee-keepers' Committee be requested to consider the best means of facilitating the sale of honey belonging to the members of the Association, and to take such measures thereupon as might seem to them advisable."

EFFECT OF THE WINTER 1878-9 UPON BEE LIFE.

Since I wrote touching dysentery in hives, on returning home after an absence of a fortnight I have found the mischief at work in my own apiary. One of my best Italian queens with entire population of an autumn-fed bar-framed cottage hive was discovered entirely destroyed by this most offensive disease. The cause probably was just as stated in my last communication. I had resolved to overhaul my entire stock the first favourable opportunity on the breaking-up of the frost; accordingly early last week, a warm day occurring with no wind, I devoted a couple of hours to the work. The result showed no trace of dysentery in any other hive. One only was poor in food, a mouse having got in and made free with the honeycomb. The creature had availed itself of the too large opening and eaten out large holes in the best part of the combs. However, the bees were lively and well, so I slipped in two or three of the cleanest and heaviest honeycombs taken from the defunct hive, both being bar-framed hives. It was the work of only a few minutes substituting the full for the empty ones, as the frames of all my stocks are exactly alike and interchangeable. As for the combs of the decayed stock I had taken them all out, and after sweeping out the dead bees and cleaning away the offensive matter as much as possible, those I did not reserve for feeding other hives (as the one just alluded to), were arranged loosely in an empty box without top or bottom, and exposed to a current of air in an open shed. Here the bees have been very busy for some days carrying off whatever food they had a mind to take, for the dead stock was well supplied, nor had the bees eaten above half their stores.

What struck me most in this overhaul of my apiary was the unusually small quantity of dead bees which were found on the floorboards. I expected to find a large number, seeing they had been shut up for so many weeks with such a continuously low temperature, and had had no opportunity of carrying off their dead. On the contrary, in some hives there were scarcely a dozen dead to be found. Is the mortality less among bees when they are thus hybernating than at other times when they are active and abroad during the winter? In our western country so near the sea it is a rare thing for bees to be shut in for more than a week at a time, nor do I recollect any winter like the present since I came to reside here twenty-one years ago. I daresay our Scotch friends on the east coast, or inland, can enlighten us on this point. Certain it is that all my surviving hives are unusually populous and lively and in the best possible health, which looks as if a cold winter was the best possible tonic for them, dry, moreover, as this has certainly been. As for the one hive that has succumbed to dysentery, I am inclined to think there may have been some special mischief at work, perhaps with the entrance way. It may have been blocked up with snow or otherwise choked up during my absence from home, so as to prevent a proper current of air passing in to ventilate the hive. The other stocks on the same stand are perfectly well and strong.

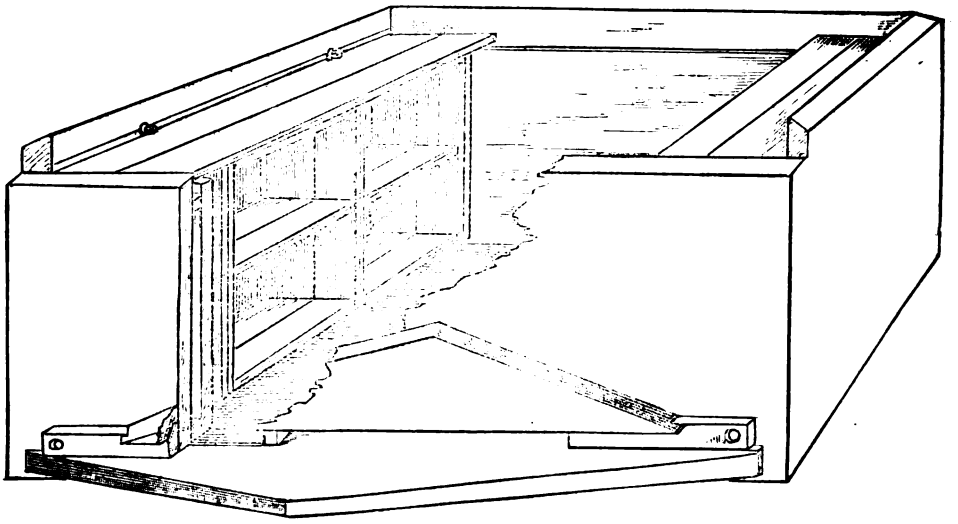


Fig. 19.—Mr. Raitt's hive.

Body of Hive, the brood frames being removed and the interior exposed, showing the method of working sections in the hive.

At the time I am writing the weather has entirely changed, and a warm muggy atmosphere prevails, but as the bees have been out every day I apprehend no evil from it. If only there were some flowers about to supply pollen, breeding would be going on vigorously. If ever artificial pollen (such as pea flour recommended by some advanced bee-keepers) were likely to prove useful now is the time to try it. I certainly intend to give this a trial, as we cannot look for any sufficient supply of natural pollen for at least a month to come under the most favourable circumstances, everything being so unusually backward.

Apropos of a state of motionless hybernation being favourable to a prolonged existence, I recollect old Dr. Buckland at the time of the Irish famine in 1848, when lecturing in the Sheldonian Theatre at Oxford, seriously recommending famine-stricken families to lie huddled together and perfectly still, on the principle that where bodily activity is arrested there vital force is most likely to be kept up, being subject to the least possible waste, a reasoning which is perfectly intelligible, and I suppose every bee-keeper will be ready to admit that bee life has much more duration in winter than in summer time.

I have sometimes thought that one reason of the greater success of our north country bee-keepers in comparison with us southrons is the colder climate they enjoy—colder in winter and hotter in summer, which is doubly favourable if the theory of this paper be a sound one.—B. & W.

BEE-KEEPING EXPERIENCES OF A BEGINNER.

I commenced bee-keeping in 1877 with a swarm which was sent on the 6th June in a hive of about the ordinary cottager's size. I did not take any honey at all that year in consequence of meeting with an accident which occurred one day when I was enlarging the hive by putting a nadir underneath it. While doing this I clumsily upset it, and as there were no cross sticks in it to my

great dismay the combs fell out. I placed them in the nadir and set the other hive on the top of it. The bees hatched the brood in the lower one, and built fresh combs and stored the honey in the top one. In three weeks' time I removed the lower one, as on the spur of the moment I had put the combs in without leaving a space between all parts of them, and so some of the brood could not be hatched. When I removed them I found that the bees had cemented those places round, I suppose to prevent the dead larvæ from being offensive to them. At the end of the season I did not care to take what little honey they had stored up, so the only profit I derived was by the increased value of the hive as being an established stock instead of a swarm. It did not have much honey in it, for I was obliged to feed it before the winter was over.

Last spring I bought another stock in an 18-inch hive. I gave this also some food, as about one-third of the outer combs had been cut out the autumn before, and both increased greatly in numbers, and also, while the fruit trees were in flower, rapidly in weight. After this, with us here (near London and close to Epping Forest), a period of very adverse weather followed till about the middle of June, by which time the hives from being very heavy had become very light. I feared that the small hive was starving, and began feeding again, and was afraid I should not have any success this year either. During the next month the hives grew very heavy, but the 18-inch one did not wish to swarm and killed all the drones, neither would it accept a super. It was too late for the small one either to do any good by swarming, so I put on a super; and afterwards as the bees began to cluster outside I was obliged to give them more room by placing underneath the hive a nadir consisting of a hive of about 16 inches diameter, cut one-third shallower. They built comb in this and filled the super at the same time.

At the end of the season I removed the super and the top hive and put the bees into the nadir, which I was obliged to enlarge by an eke, making it into a full-sized 16-inch hive. The nadir was three-quarters full of comb but no honey was left in it, so I fed it with syrup for the winter. The super contained about 5 lbs. of honey, and the hive about 11 lbs. without including waste, &c. I drove the bees of the 18-inch hive into an empty one and fed them with syrup. I obtained from it about 27 lbs. of honey without including 2¼ lbs. of refuse honey and the waste, &c. The hive was an old one, and many of the combs were black and thick with the skins of many generations of larvæ, and consequently there was much refuse. There were only 4 lbs. of bees in it, so I bought 3½ lbs. more from a farmer and added them to it.

The trouble I have taken has been compensated by the pleasure which I have derived from the bees, and it will be seen that I have obtained 43 lbs. of honey, and that instead of the small cottager's hive I have now a 16-inch one, and both hives are very strong. Considering the unfavourable season I am very well satisfied, for I have succeeded better than the old bee-keepers near me whose results I know, but who follow the old-fashioned plan. The farmer mentioned above had five hives (I believe only one of these was a swarm of 1878), and as he followed the old system he was obliged to leave the two best for stock. I drove two of the others, and the results were together about 3½ lbs. of bees, and I should think 5 lbs. of honey. The other one was not worth driving, as it had scarcely any bees in it and no honey. I shook a few bees out of it among the others.

I drove about 2½ lbs. of bees from a hive belonging to a gentleman who owns three, and placed them in a small hive and fed them up. This gentleman has been waiting to see how the sugar-fed stocks turn out in the spring, with a view to gathering a lesson. My profits last year (including the value of the honey I kept or gave away, and the increased value of the stock, but deducting the value of sugar &c.), was £1 16*s.* 10*d.* I hope that the very cold winter will be followed by a hot summer, and that we shall do better this year than last. I much prefer the sectional supers to others, but think the size used at present is too small for all hives. This year I hope to use some 10 inches square, and of about three times the capacity. I trust my experience may be useful and encourage others to commence bee-keeping.—TOM TOWER.

OUR LETTER BOX.

COWS FOR MILKING (*G. S.*).—We recommend the first cross by an Ayrshire bull from a Shorthorned cow, as not only making a better milker than a pure Ayrshire, but a larger and better animal for feeding fat when past milking from any cause.

BREEDING PIGS (*W. A.*).—The gilt referred to having neglected her pigs is no doubt of a peculiar temper. We find them so sometimes, but never think of breeding from them again. It is far better to fatten such animals.

READING PIGEON SHOW (*A. R. F.*).—We did not receive the list of awards to which you refer.

BEES AND THEIR PASTURE (*W. H. Attwood*).—We think that one hundred stocks of bees are rather too many to be placed in one field. They would do better if they were divided in two or three lots and placed at least a mile asunder. When too many bees stand in one place the flowers of the neighbourhood are so frequently visited and drained that the bees have to spend more time and labour in filling their honey-bags. Will you oblige by sending your address to Mr. Pettigrew, Sale, Cheshire?

FOWLS FOR MARKET PURPOSES (*Cheriton*).—If by a market you mean an ordinary country town market we shall advise you to keep Brahmas, which are hardy, good layers, good sitters and mothers; chickens easily reared, and large at an early age. If you want to supply the London market with choice poultry you must have Dorkings. They are hardy if you have a good and large run, but they will not do in confinement. They are fully average layers, sit well, and are good mothers. If you have an eye to profit you must look to the sale of eggs in the winter. To have eggs in December and January you must save pullets in April and May. Brahmas lay at an earlier age than Dorkings.

FERTILITY OF EGGS (*Rus in Urbe*).—You open a question by your query that has been often argued and debated, and like most other points subject to such treatment remains where it was. The condition of the cock has much to do with the answer to your question. Does he submit to the destruction of his plumage from weakness or want of health, or because he receives it as an attention on the part of the hens? We cannot think you are wise in putting him with other hens, they will eat his feathers. You have two plans open to you. One will be to put the cock with the hens in the pens after dark, and to remove him one hour after daylight; the other is to keep him confined in one corner of the pen by a hurdle. He may then be let out for an hour morning and evening, and that will be all you want to make the eggs fertile.

STEWARTON HIVE (*R. A. White*).—No doubt the Stewarton hive is available for sectional supers, as it is undoubtedly for supers of its own class, only it would probably require an adapting board with holes to correspond with the bar spaces in the boxes. The screws used to fix the frames are an undoubted objection. We long ago discarded screws as well as nails, finding it a nuisance to have to extract them, perhaps at a most critical moment in the manipulation of hives. The Stewarton hive proper consists of three octagon body boxes, each furnished with seven bars. Of course there have been modifications, as in the "Carr Stewarton" hive, which is square; but the true and original Stewarton is as described. The hive which you have lately received from the London firm must be a still further modification.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
1879. Feb.	Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 12	29.617	37.2	36.0	N.	42.0	44.6	34.8	59.0	31.3	—
Th. 13	29.831	40.6	38.4	S.	41.5	42.6	36.6	47.3	32.0	0.291
Fri. 14	29.498	45.1	44.3	S.	41.0	49.1	40.1	57.0	39.6	0.020
Sat. 15	29.615	33.9	33.1	E.	41.3	45.0	33.9	45.5	39.0	0.320
Sun. 16	29.066	39.3	37.0	N.W.	40.7	44.7	38.0	64.4	37.6	0.105
Mo. 17	28.961	36.2	35.4	N.	40.0	42.7	32.3	63.9	28.7	0.147
Tu. 18	29.137	34.1	33.1	W.N.W	39.0	42.8	31.0	73.7	29.2	0.180
Means	29.392	38.8	37.5		42.2	44.2	36.0	58.5	34.0	1.073

REMARKS.

12th.—Fine bright morning, rather cold; overcast by noon until 3 P.M.; fine and bright afterwards.

13th.—Dull morning; rain commenced 11.45 A.M., and continued till 3 P.M.; fine for a few hours, rain again in evening.

14th.—Foggy morning; fair day, but at times overcast.

15th.—Dull cloudy day; very slight rain; misty in afternoon; cloudy evening.

16th.—Fine and bright with sunshine; cold wind; rain in evening.

17th.—Snow in early morning, afterwards rain; fine, with intervals of sunshine after 11 A.M.; very clear sky at sunset, and cold; wet evening.

18th.—Bright and sunny all the morning; cloudy in afternoon; fine evening, followed by snow at 10 P.M.

Much cooler, and damp throughout.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 19.

THE vegetable market is somewhat easier now, prices during the late frost having been as high as known for some years. The fruit market remains the same.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	2	0	to	6	0	Melons	each	0	0	to	0	0
Apricots	dozen	0	0		0	0	Nectarines	dozen	0	0		0	0
Chestnuts	bushel	12	0		16	0	Oranges	℔ 100	4	0		10	0
Figs	dozen	0	0		0	0	Peaches	dozen	0	0		0	0
Filberts	℔ lb.	0	9		1	0	Pears, kitchen	dozen	4	0		6	0
Cobs	℔ lb.	0	9		1	0	dessert	dozen	3	0		8	0
Grapes, hothouse	℔ lb.	2	6		8	0	Pine Apples	℔ lb.	1	0		3	0
Lemons	℔ 100	4	0		8	0	Walnuts	bushel	0	0		0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	2	0	to	4	0	Mushrooms	pottle	1	6	to	2	6
Asparagus	bundle	6	0		12	0	Mustard & Cress	punnet	0	2		0	0
Beans, Kidney	℔ 100	1	0		1	6	Onions	bushel	2	6		4	0
Beet, Red	dozen	1	0		2	0	pickling	quart	0	4		0	0
Broccoli	bundle	0	9		1	6	Parsley	doz. bunches	2	0		0	0
Brussels Sprouts	½ sieve	2	0		4	0	Parsnips	dozen	0	0		0	0
Cabbage	dozen	1	0		2	0	Peas	quart	0	0		0	0
Carrots	bunch	0	4		0	8	Potatoes	bushel	3	6		4	0
Capsicums	℔ 100	1	6		2	0	Kidney	bushel	4	0		5	0
Cauliflowers	dozen	3	0		6	0	Radishes	doz. bunches	0	0		0	0
Celery	bundle	1	6		2	0	Rhubarb	bundle	0	0		0	6
Coleworts	doz. bunches	2	0		4	0	Salsafy	bundle	0	9		1	0
Cucumbers	each	0	9		1	0	Scorzonera	bundle	1	0		0	0
Endive	dozen	1	0		2	0	Seakale	basket	2	6		3	6
Fennel	bunch	0	3		0	0	Shallots	℔ lb	0	3		0	0
Garlic	℔ lb.	0	6		0	0	Spinach	bushel	2	6		4	0
Herbs	bunch	0	2		0	0	Turnips	bunch	0	2		0	0
Leeks	bunch	0	2		0	0	Veg. Marrows	each	0	0		0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 27—MARCH 5, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
27	TH	Royal Society at 8.30 P.M.	47.7	33.5	40.6	6 52	5 34	8 26	morn.	6	10 58	58
28	F	Royal Institution at 8 P.M.	49.1	32.8	40.9	6 50	5 36	8 54	1 6	7	12 47	59
1	S	Royal Medical and Chirurgical Society (Anniversary)	47.4	33.6	40.5	6 48	5 37	9 31	2 12	☽	12 35	60
2	SUN	1 SUNDAY IN LENT. [at 8 P.M.	48.7	34.7	41.7	6 46	5 39	10 21	3 11	9	12 23	61
3	M	London Institution at 5 P.M.	49.9	32.2	41.0	6 43	5 41	11 34	4 0	10	12 11	62
4	TU		49.7	31.5	40.6	6 41	5 43	0 a 38	4 38	11	11 57	63
5	W	Society of Arts at 8 P.M.	48.9	31.8	40.3	6 39	5 44	1 59	5 8	12	11 44	64

From observations taken near London during forty-three years, the average day temperature of the week is 48.7°; and its night temperature 32.9°.

SOWING SEEDS UNDER GLASS.

A REPLY given last week to an Irish subscriber embodied a hint, as replies in your correspondence columns often do, of importance to others besides the querist. If there is one mistake in the routine of gardening more common than another it is the practice of sowing seeds too thickly. Especially is this the case in the sowing of seeds under glass. Whether the plants being raised are such vegetables as Cauliflowers, Celery, or Lettuces, or such flowers as Lobelias, Calceolarias, or Cinerarias, the seed is frequently sown from three to ten times more thickly than it ought to be. The waste of seed in such cases is a small matter in comparison with the spoiling of the plants, which is inevitable under the circumstances.

If a hundred Celery plants are wanted for an early row, how often are at least two thousand seeds sown in a box or pan to produce them. The result is that a mass of crowded vegetation resembling a pan of Cress is produced, and not one really sturdy and healthy Celery plant is to be found in the whole batch. For producing the number of plants required a few of the best—and bad they often are—are selected from round the sides of the pan and pricked out, the great bulk being simply spoiled and wasted. The same remark applies with still greater force to Cauliflowers, for these, having much larger seed leaves than Celery, spoil the sooner when the seed is sown of the same thickness in both instances. In raising seedlings of any kind under glass the cultivator should first determine the number of plants he requires, and if he sows about twice the number of seeds he will with ordinary care produce more than sufficient plants of infinitely superior character than if five hundred seeds were sown in the same space to raise each hundred plants required.

In sowing seeds that germinate freely they should not be placed nearer to each other on the surface of the soil than the diameter of the cotyledons, or seed leaves, of the plants; and even then, if all the seeds vegetate, a number of the plants should be drawn out before the seed leaves are formed. That is the best possible mode of preventing the damping or fogging-off of seedlings, and the most certain means of raising a healthy stock of plants—the first condition essential to success in culture. Thus Celery seeds should not be nearer to each other than an eighth of an inch, Cauliflower seeds a quarter of an inch, Balsams half an inch, and so on; those being minimum distances, and if a few seeds fail to germinate so much the better for the plants and the grower.

Those deductions are founded on thirty years of experience, and are the outcome of many failures which led to a few successes. The older I live the more thinly do I sow seeds under glass. I have experienced great difficulty in inducing young men to sow such flower seeds as Petunias, Stocks, Asters, &c., even half as thinly as they ought to be sown; and I suspect there are hundreds of other young gardeners, also amateurs, who are in the habit of wasting seed and spoiling plants by the practice indicated. Great care is taken in the management of the seed pans, yet that care is very simple. The four primary conditions for insuring the germination of seed are moisture, air, darkness, and heat. Only moderate heat is generally required. Moisture must be steady and regular; the soil must not be dry even for a moment after the seeds are sown, especially that portion of it at the bottom of the seed pots or pans. It is by having the surface more moist than the soil beneath that many thousands of plants are lost annually by damping-off. Darkness is secured by covering seeds with soil, yet if they are covered too deeply and air is excluded they will not vegetate. In the case of very small seeds, such as Calceolaria, Lobelia, Gloxinia, &c., the real difficulty is to cover them lightly enough, and I have found in the case of the very smallest seeds that it is excellent practice not to cover them with soil at all. Provided the soil in the pots is thoroughly moist and the temperature necessary for the germination of the seeds is right, it only remains to make the frames containing the pots dark by covering the glass thickly, or by covering the pots individually (if they are in houses containing plants which must have light), to insure the satisfactory vegetation of the seeds. The common practice of raising Mustard and Cress without the seed being covered, so that the produce is free from soil particles which adhere to the young plants when they have been forced through the surface of the soil, affords all the evidence needed that the covering of seeds is not necessary when the proper amount of moisture and the necessary absence of light are provided. In fact I do not hesitate saying that that is the best of all modes of raising plants from very small seeds.

An important desideratum in the germination of small seeds is a moist atmosphere for the seed pots and pans. Such small seeds as Calceolarias, Petunias, Begonias, Gloxinias, &c., should never be watered—that is, it should never be necessary to pour or sprinkle water on the surface of the pots before the plants appear. Great injury is done by watering seeds, first because the seeds are not infrequently washed into heaps; and secondly, the care that is often exercised to prevent that contingency results in such slight "dewings" or faint sprinklings which do not penetrate through the entire mass of soil, and then damping-off of the seedlings occurs as a matter of course. The soil at the bottom of seed pots and pans should always be as moist, or, indeed, more moist than the soil at the surface of the pots. This can generally be effected by placing the pots on a moist base, such as soil, ashes, or cocoa-nut fibre; but if the requisite moisture cannot be insured by any other means place the pots in saucers of water. When the seed pots have to be placed on shelves, especially when they are made of open latticework, saucers are indispensable until very small seeds have germinated. When the soil has been watered previously to sowing the seed, and a square of glass is placed over each pot and the glass is further shaded, the water in the saucers will afford sufficient moisture for the germination of the seed. In raising plants under the darkening mode it is of the greatest importance that the covering be reduced immediately the first

signs of germination appear, removing it by degrees until the seedlings can endure the full light.

In all probability thousands of plants have already been spoiled during the present spring by the seed having been sown too thickly, and the plants having been kept longer than was necessary in an unduly high temperature; it is consolatory, however, to know that if more seed is sown at once—sown thinly, and the seedlings managed intelligently, little if any time will be lost in the end, for stout sturdy plants raised at the end of February or beginning of March are infinitely superior to tall lanky weaklings raised from seed sown a month previously, and the last raised plants will often arrive at maturity the soonest, be they flowers or vegetables.

Much more depends on the manner of sowing seeds and on the management of the seedlings than on the mere time of sowing in the raising of early crops. No date can be named as the most suitable for sowing seeds under glass. Circumstances and conveniences are far more important than dates in determining the proper time for sowing. It is easy with the aid of a well-heated house or dung frame to raise seedlings by the thousand in January or February, but unless other suitably heated and light structures are provided for the subsequent growth of the plants the seedlings are only raised to be destroyed, and seed, space, and labour are wasted. The great majority of cultivators are those whose glass structures are limited to one or more cool or moderately heated houses and a few frames. It is common for those to make up a dung bed early in the season for Cucumbers, and for the raising of other plants from seed. These are the people who err by sowing seeds too soon and too thickly, because, having no room or suitable place for growing on the plants thinly, they are left to be drawn up and eventually to perish in the seed pots. There is no difficulty in raising any number of seedlings when a heated frame is provided; difficulty only begins after the seedlings appear, and seed, therefore, should never be sown unless the cultivator is assured that he can afterwards grow on the plants unchecked. This he can always do by waiting for the natural increase of heat and light, which always come with the advance of the season.

Another question connected with the raising of hardy and half-hardy plants under glass may, perhaps, be usefully noticed—namely, the question of heat. As a rule many seeds are sown in much too high a temperature. The seeds germinate rapidly, but it is at the expense of the plants, which come weakly, and time is lost rather than gained by the extreme forcing process when it is applied to the raising of vegetables. Owing to the severity of the winter and its continuance into spring vegetable crops can only be produced at all early this year by sowing seed under glass. In doing this it is well to bear in mind the process of Nature. Nature sows her seeds when the ground is cool, and the plants increase in growth with an increasing temperature. Man often does quite the reverse; he plunges his seed pots in a tropical heat, and is then compelled to subject the seedlings to what is, to them, under the circumstances, an arctic temperature. We are obliged at times to act contrary to Nature, but it were well if we did not oppose her so violently. Vegetable crops can be greatly accelerated by sowing seed in rich light soil covered with glass, and other shelter when necessary, instead of sowing it in heated frames. Small frames and glass protectors are now advertised so cheaply that every garden should possess them. These placed in a sheltered position and partly filled with prepared soil are most valuable for the raising of such seedlings that only require protection from cold to insure their steady advancement. A box plunged in the ground at the foot of a south wall, and filled to within 3 inches of the top with light rich soil, and covered with a few large squares of glass, forms a seed bed superior to any hot dung frame for raising such vegetables as Cauliflowers, Cabbages, and Lettuces, and such flowers as Stocks, Asters, Golden Feather, &c. This rude structure gives an idea of the various superior protectors that are now provided. If a little bottom heat, say of about 50°, not more, can be provided it will be a great advantage. Seed sown now, or when the weather is favourable, under such conditions, and sown thinly, will produce better plants with less trouble, and crops nearly or quite as early are those produced by early and thick sowing of the seed in January.—A NORTHERN GARDENER.

VITALITY OF GARDEN VERMIN.—Your correspondent "G. O S." invites reports as to the destruction of slugs and other vermin during the long-continued frost. Here, in Cleveland, we often had the thermometer down to 5°; the ground was hard as a rock to a depth of 15 inches, and yet four days ago I found among the clumps of Violets great numbers of the small black slug as cheerful as possible—a very unpleasant surprise.—YORKSHIRE.

A TRIAL OF FUEL.

WHICH is the best fuel for the generation of heat in the furnaces of garden boilers and flues? Such was the question which I put lately to a worthy old man who for nearly thirty years has had charge of the fires in the garden where he still works as an under gardener, content to remain his master's "right hand," and proud to know that his services are valued and himself respected. "Well, sir," said he, "Master has tried coke, and tried ant'cite: but I always tell him there's nothin like a mixter for a steady heat." I was inclined to think my old friend right, and in truth I had been long ago taught to consider his "mixter" an excellent fuel, but must confess to not altogether agreeing with him, for a reading-up of authorities had given rise to a preference for coke for which I am afraid no sound reason drawn from actual experience could have been given.

In all I had read concerning the relative value of fuel I failed to recall any clear statement of the conditions under which trials have been conducted; and yet when we come seriously to consider the various influences affecting a trial or rather series of trials, the difficulty of arriving at a reliable conclusion is certainly not inconsiderable. Let it not be forgotten that here I refer solely to trials made in such a heating apparatus as is used for horticultural purposes, for I am aware that that fuel is thought best a given quantity of which will cause water to boil soonest in the boiler of a fixed steam engine. But surely such data are somewhat vague, to say the least, for a given steady heat is what we require rather than water at the boiling point—a mere flash-in-the-pan that is quite beside the question.

During the late severe weather there came a time—and a most tantalising time it was—when the thermometer kept steadily within a degree or two of the freezing point for many days together; dense clouds shut in the sky, a heavy mist hung among the trees apparently undisturbed by a light wind from the north-east, and as day followed day without change it occurred to me that we could have no more favourable opportunity for a trial of fuel, three lots of which were prepared forthwith—1 cwt. of coke, another of anthracite, and another consisting of equal parts of coke and anthracite well mixed. The trial extended over three days, a separate day being given to each kind of fuel, and I was so fortunate as to have three consecutive days of a similar steady temperature of 31° in the open air, and with clouds, wind, and mist unchanged. On the first day the 1 cwt. of anthracite was taken, and a fire made in the furnace of a saddle boiler heating a light glass house some 30 feet by 16. The temperature of the house when the fire was lit was 43°; duration of fire seven hours, maximum temperature attained 50°. Next came the coke under precisely similar conditions with somewhat better result, the duration of fire being nine hours, and the maximum temperature 51°. On the third day the mixed fuel was used with still better results, the duration of fire being eleven hours, and the maximum temperature being 52°, thus proving the truth of the old fireman's assertion that "there's nothin like a mixter." Due care was taken to manage each fire just as is done in ordinary practice, the furnace being filled when the fire was sufficiently strong, a moderate draught maintained, and the fire stirred only before throwing in more fuel. No doubt the maximum temperature would have been higher each time for a little while with a strong draught and frequent stirring, but the result would not have been so useful.—EDWARD LUCKHURST.

NUMBERS VERSUS NAMES FOR ROSES.

THE advantage of employing numbers instead of names is, I think, generally admitted, and adopted by the trade and large growers, and I think they might with equal advantage be employed by small growers who, like myself, grow Roses for pleasure.

A friend of mine has in use a very simple plan which, without claiming any originality for it, I will try and explain, hoping it may be of use to some of your readers. He has taken Mr. Hinton's 1877 election list for his foundation, and commences by calling No. 1 Marie Baumann. One of the

advantages of this is that it very soon fixes the 1877 position of each Rose in your mind. Having finished his numerical list, using Mr. Hinton's list as far as it goes, adding in the order he thinks proper any remaining varieties, he then enters them into an alphabetical index, such as tradesmen use for their ledgers, only of a size convenient for his pocket. With his alphabetical index and corresponding numbers he has no difficulty in at once finding the number of any Rose should he know the name and require the number. With his numerical list at the end of his book he has no difficulty in finding the name should he know the number.

By constant use you become familiar with numbers and names, and could almost dispense with your book. But it would be well to have a larger book in reserve in case the small pocket book is lost or mislaid.—MANCHESTER.

NOTES ON GRAPES.

WERE it not that your able correspondent "A KITCHEN GARDENER" puts a question to me (page 118), in which is conveyed the insinuation that I do not practise what I preach, I would not have returned to this subject just now.

I do not grow White Lady Downe's Grape for the same reason that I do not grow Black Lady Downe's, Alicante, and other coarse late-keeping Grapes—simply because I can supply my employer's table with very much finer Grapes throughout the season that Grapes are required of me. I have no anxiety to uphold the quality of either White or Black Lady Downe's, but having seen the White cotemporaneous with the Black plump and sound in April, and know those who do find it still keep well, I expressed the opinion that "A KITCHEN GARDENER" condemned it "too sweepingly." A correspondent lately spoke of White Lady Downe's as a "useful" late Grape, and I think myself that is just all that can be said of some other early and late varieties. I do not for a moment doubt that Buckland Sweetwater is a useful Grape, and that "A KITCHEN GARDENER" finds it so; but I still adhere to what I said of it, that in no sense of the term can it be classed where your correspondent classed it—among "fine-flavoured" Grapes. I am not by any means singular in thinking that far too much has been made of the qualities of Buckland Sweetwater. It must be granted that it is a very easily grown variety. The same could be said of others that have next to nothing else to recommend them. It is to be hoped, however, that first-class horticulturists like your correspondent will not care to view their productions from that as their chief standpoint. I do not find Buckland Sweetwater useful because my employers will not use it. To compare it with Lady Downe's and Alicante and other late Grapes can scarcely be regarded as a fair comparison. The one Grape is for one season and the others for quite a different one. For my own taste I consider Lady Downe's in February and March if well ripened a better flavoured Grape than Buckland Sweetwater.

"A KITCHEN GARDENER" says, "The less said about the Duke of Buccleuch the better." Certainly, if he cannot grow it, it is his wisdom to keep it out of his selection. He brings out its bad qualities sweepingly, but I cannot see my way to chime in, for this among other reasons: I find no white Grape so acceptable at my employer's table, and have had more said to me by a class of society most of all accustomed to fine Grapes in praise of the appearance of the Duke of Buccleuch than of all other Grapes put together. This may be considered bringing out its good qualities. To say that Buckland Sweetwater is comparable to the Duke in either appearance or flavour is nothing short of nonsense. I quite admit the Duke has been a failure in many places, for I have been eye witness to such, but in every instance I had no difficulty in seeing what was to my judgment sufficient cause for the failure, and I have as good a right to say as much about the way the Duke suits my purpose as your correspondent has to condemn it because he fails to grow it. Contrary to what your correspondent seems to believe, I am under the impression that the same treatment and conditions should as a rule produce the same results, and I have not yet met with any contradiction of this impression in the culture of Grapes. At Archerfield I grew the Golden Champion as successfully as I have grown the Duke here, and no two places could be more dissimilar in soil and climate. I have failed, despite all the measures I can devise, to grow Muscats of Alexandria here as I have done on the east coast. But am I to condemn the Muscat for that? So that, so far as I am concerned, I can here grow the Duke, but not the Muscat, well. It is not the Duke alone that I have a desire to speak a word for. While such exquisite-flavoured Grapes are in existence as the Frontignans I look upon it as a pity that such Grapes as Buckland Sweetwater and Foster's Seedling should have all but elbowed them out of our vineries. I think it is not creditable to us as horticulturists that this should be so.—D. THOMSON, *Drumlanrig Gardens.*

CAMELLIA BUDS DROPPING.

I AGREE with "R. M. A." (page 113) to a certain extent that the winter has not been favourable to the flowers expanding; but I wish to point out a few other causes of the plants dropping their buds. Lack of moisture at the roots during the time the buds are swelling causes the base of the buds to become soft, and therefore turn brown. This I consider one of the causes of the buds falling. The Camellia is a moisture-loving plant; yet by no means should the plants become waterlogged at any time, as that will also cause the buds to drop. Another cause is overpotting, through which the soil becomes sour.

I always turn all the plants out of doors during the summer; but this is not done until they have made their growth, and then they are not placed in an exposed situation, but in a sheltered corner, where they are under the eye and not neglected watering. Previously to housing the plants I go carefully over them and examine their drainage, and rectify any fault in that respect. I also wash every leaf as well as the wood with soft soap and warm water, which keeps them clean all through the winter.

Camellias have with me flowered very satisfactorily this season. I counted the other day upwards of a hundred fully expanded blooms on a plant of Imbricata. The plant measures 7 feet in height and 3 feet through. The same plant has been flowering more or less since Christmas, and to all appearance will continue flowering for another month. Alba plena has also flowered well; also Lady Hume's Blush, which I consider a very useful variety, so admirably adapted for cutting. Reine des Fleurs has had some fine flowers; also Elegans, Countess of Orkney, and many other varieties have all flowered extremely well.—J. L. J.

SUNSHINE.

IN the Journal of February 20th, under the head of "Notes and Gleanings," it is remarked "The present winter has not been more remarkable for its prolonged severity than from the long-continued absence of sun." I apprehend all of us have more or less noticed this. In a wet winter we do not expect much sunshine, but during a long frost there has generally been a continuance of bright sunshiny days. During the late winter—(shall I say the late? 12° of frost last night does not look like it)—what a continuance of dull, heavy, leaden skies there has been! The sort of weather that suggests the sarcasm of our lively friends across the Channel, that the suicides in England, especially in November, are all attributable to the climate. Some have even gone so far as to write the Englishman's epitaph—

"Ci gît Jean Rosbif, Ecuyer,
Qui se pendit pour se de s'ennuyer."

"Here lies Sir John Plumpudding of the Grange,
Who hung himself one morning for a change."

But it is a question whether the late sunlessness is not a matter of serious import, and one likely before long to call for considerable notice.

It is stated—I am not astronomer enough to vouch for the facts—that during the last eclipse the condition of the sun was observed to have undergone a change, that the sun spots were much fewer, and that the burning hydrogen of the corona had largely disappeared. This would imply that solar heat and activity of late have decreased. In conjunction with this we are informed of another very singular fact, that soon after 1880 four of the greatest planets of our system—Jupiter, Uranus, Saturn, and Neptune—will be at their nearest approach to the sun almost coincidently. This is an event that will not have happened since the commencement of the Christian era, and it is thought may affect the atmospheric state very unfavourably. The view is, that when one or more of the large planets is nearest to the sun the temperature and condition of our atmosphere are so disturbed as to cause injurious vicissitudes, terrible rains, prolonged droughts, resulting in the destruction of crops, and pestilence among human beings and domestic animals. The further inference is, if one planet affects us thus unfavourably what may not be expected from such an unprecedented conjunction? Whatever are opinions, facts remain.

It is certainly the case that for horticulturists as for agriculturists there have been very trying and perplexing seasons, and that at present things do not seem very likely to mend. —A. C.

SMALL VERSUS LARGE GLASS HOUSES AND BOILERS.

As usual Mr. William Taylor has directed attention to important subjects at page 95. His remarks on valves will be verified by every practical gardener, and if am not mistaken so will what I am about to submit to you.

It has frequently been asserted by practical men that modern glass structures are not more favourable to fruit or plant development than those built on the old-fashioned systems of glazing, &c., are. It is my opinion that the size that many glass houses are now made, the large boilers put in to heat them, and the complicated way in which the pipes and valves have to be arranged, are altogether more unsatisfactory than the plain old-fashioned system. It is pretty well known and admitted that everything which has to be grown under glass usually succeeds much better in a small or moderate-sized house than in a very large one; and as to boilers, a convenient-sized one with its work straight before it and sufficient power to do it thoroughly is certainly much preferable to a monster boiler put in to heat 5000 or 6000 feet of 4-inch piping.

My experience does not lead me to speak favourably of either big glass houses or big boilers. A vinery, say from 150 to 200 feet long, 20 feet wide, and the same in height, has a grand appearance; but I never could grow such fine fruit in those imposing structures as in houses from 30 to 50 feet long, about 16 or 18 feet high, and the same in width. I have observed many instances which proved the correctness of this, not only in Grape-culture, but other kinds of fruit and plants as well. Probably boilers and valves are partially to blame for this, as the atmosphere of large houses fluctuates so rapidly. In a cold windy day this is most perceptible. Allowing the temperature of houses to rise and fall with the external temperature will not act injuriously on anything providing the change is not too rapid; but this is just what it is in very large houses, as everyone must have proved that has had dealings with them.

It is well known that rapid and extreme changes of temperature are prejudicial to tender fruits or plants. Small and moderate-sized houses are just the places where the temperature can be worked up or down at pleasure, and with great convenience, by having good boilers and few valves. I know of nothing more annoying than to have one boiler heating two or three large structures or eight or ten small houses, and just when heat is wanted in one of them it cannot be secured. This is what frequently occurs, and the best laid pipes, regulated valves, or experienced persons to work them cannot avoid this. In large houses with much piping in them, and where the boiler had more than one house to heat, I have seen the hot water circulate up one side of the house and leave the pipes on the other side cold, although both valves were alike open. This is the result of having too much piping going in so many directions; and, although the maker of the boiler may guarantee it to heat the number of feet of piping attached, yet if the different arrangements are not sufficiently considered failures will occur.

I do not know of a greater mistake that anyone can make connected with the erection of glass houses than to put in one large boiler to do the work of two, three, or four smaller ones. In defence of the large one it may be said that there is only one fire to keep going in the place of three or four, but the difference of the consumption of fuel in many cases would be difficult to prove, not to speak of the extra labour and often faulty circulation caused to the large boiler. To all contemplating erecting glass houses I say, Have convenient middle-sized structures. Do not have one very large boiler instead of two small ones, as many valves are certain at some time to result in much labour, annoyance, and a deficiency of heat when it is most wanted.—A KITCHEN GARDENER.

PEAR ELECTION.

WE may rest assured that in "WILTSHIRE RECTOR'S" able hands the Pear election, in whatever way it is carried out, will be of interest to all of us. But if the suggestion of "AMATEUR, *Cirencester*," of throwing out early and late varieties is carried into effect, the election would fail to provide the very thing it is most wanted for—namely, a succession of the best Pears over the longest period of the year instead of the glut for a month or two which at present exists in too many gardens. This seems to me the most essential feature of the whole election, and at the same time the greatest difficulty in the way of carrying it out successfully. Exhibition Roses coming into bloom simultaneously can easily be compared one with another and judged according to their relative merits, but how can a Pear ripening, say at Easter, be compared with another ripe in October?

If the list is to be for the twenty-four best Pears, I would suggest dividing the number into four equal parts instead of merely trying to place them in their order of ripening, and placing first the six best early varieties say for August and September, then the six best autumn Pears for October and November, followed by the six best winter kinds for December and January, and finish the six best for February and March, or later. If some such arrangement is not made an undue proportion of autumn Pears will inevitably find their way into the lists; and let any of your readers who doubt this look to their fruit rooms. Can any one of them send you six distinct dishes at the present time which are good enough to escape the condemnation of faint praise? And if not, what further proof is required of the desirability of paying special attention to the latest varieties.

In his interesting article last week "WILTSHIRE RECTOR" has pointed out the proper treatment for ripening late Pears, and all we now require is a knowledge of the best kinds for the purpose, and the way in which they should be grown—whether on walls, in the open, or under glass.

Such of the electors as are unable to select late Pears from their own experience should of course leave them out, and I venture to predict that the number of blanks would most eloquently prove this to be the point on which information is most needed.

The time of ripening would doubtless vary according to locality and seasons, and opinions will differ even more as regards the merits of different varieties, but these are the very points to be cleared up by the election.—ESSEX.

DWARF STOCKS FOR ROSES.

DWARF stocks for Roses have certainly increased during the last few years. Formerly we felt satisfied with the Manetti as a stock; and if dwarfs were required different to this they were obtained on their own roots. Now we have in addition to the Manetti the seedling Briar, Briar cuttings, and the De la Grifferaie stock for dwarfs; while a friend of mine, a noted amateur grower, is discarding the Manetti for a stock belonging to the Gallica race of Roses, which he describes as being very free-rooting, not liable to mildew, and makes scarcely any suckers.

Most growers of any note have a fancy for their own particular stock; for instance, Mr. Jowitt told me that he could do nothing with the seedling Briar; and another exhibitor I know condemns all but the Manetti. It has been his favourite stock for years; and with a feeling of pride he points to his Roses on Manettis to the disparagement of plants in the same garden on the Briar. For my part I cannot admit that the Manetti with me is in anywise equal to the seedling Briar. Roses on it make very luxuriant growth the first season after being budded; and though in most cases I leave them in the ground where they were budded, still the following year when cut back their growth is weak, the blooms small, and they prove altogether most unsatisfactory, whereas plants on the seedling Briar make equally good growth after being cut back as they do previously to that operation.

During the last two or three years we have heard of rooted Briar cuttings being employed as a stock, so I planted some this winter, and hope in due time to be able to chronicle the result in the Journal. However, to judge from their appearance when planted I think they will eventually take the place of the seedling Briar, for the following reasons: We shall not have to wait quite so long for them to grow big enough for budding; again, the wood is straighter and cleaner at the place required for the insertion of the bud; and last, though not least, the roots radiate from the stem like the fingers of a hand when laid flat on a table. This alone I consider of the greatest importance, as the plants will derive more immediate help from top-dressings, mulching, liquid manure, &c., than the seedling Briar can possibly do, because of its tendency to make tapering or tap roots, consequently travelling further

away from any stimulant that may be applied to the surface, and very probably getting into something ungenial to the requirements of the Rose, which may in some instances account for its proving unsatisfactory.—OXONIAN.

AN EXHIBITION GUIDE.

I TENDER my best thanks to Mr. Iggulden for so kindly replying to my request; and who will deny his remarks being both interesting and of much value? An accepted standard of perfection arrived at previously I hold to be desirable, and were Mr. Iggulden's standard agreed to I should accept it cheerfully. Previously to 1868 I took little interest in gardening, though I had some knowledge of the craft, my father having been for forty-five years a market gardener. Since the date named it is just possible that I have had flowers and fruit on the brain; certainly since then I have spared no pains to learn how to grow and to find out what were best worth growing. I have visited many shows, distance being counted of slight object; and though I have been a silent observer, I have exercised all my powers to comprehend the subject of exhibiting.

To detect good fruit from moderate fruit is not a hard task, and I never saw a decision where really first-class fruit was staged but I imagined I could detect the reason why. Where fruit is all moderate, to decide the merits of the dishes is frequently a difficult task indeed. To induce two people to arrive at one opinion regarding the value of separate dishes of fruit is a difficulty that I have frequently found insurmountable. Said a judge in my hearing at a summer show, "I don't like those Lord Suffield Apples, there is no weight in them." I suppose he would have said the same of the Keswick. As will be supposed, he gave the prize to a hard heavy variety that would be in season the Easter following. Last summer I was recommended, and by a good judge, to grow highly coloured Peaches. The next show I went to—Bishop Auckland—where there were some really fine Peaches, the first prize was given to Lord Palmerston, not of the best flavour, and certainly not highly coloured.

Now to seek to tie the hands of gentlemen who undertake the onerous task of judging is far from my thoughts; but if those gentlemen would kindly give us an inkling of their opinion during these dark dull months, which is what I am most anxious for, I think we might frame an accepted standard for judging.

Regarding varieties of any kind of fruit, I may state that I would rather hold all to be counted equal until proved otherwise by appearance, or by tasting if deemed necessary. For this purpose, of all the minor dishes of fruit I would suggest that an extra fruit be placed by the side of the dish for tasting or to replace any one on the dish that might be tasted in preference when deemed necessary. These spare fruits, if not needed, could be gathered up by the committee before the public were admitted, and then each dish would remain perfect and still have been tested for quality.—J. WITHERSPOON.

HELLEBORES.

"W. G." on page 79 states that it is "erroneous" to describe Helleborus guttatus, H. abchasicus, and H. colchicus as synonymous with H. olympicus. "Such statements," continues "W. G." "allowed to pass unnoticed will only tend to add to the confusion that already exists with regard to the nomenclature of this interesting class of hardy plants." Just so, but "W. G." finds no difference in the "habit and texture of foliage, number and form of flowers" of H. guttatus from those of H. olympicus, only "the sepals are invariably more or less copiously marked with dark purple spots." I admit that H. olympicus rarely has spotted flowers, but the "flowers as well as the leafstalks are beautifully mottled with reddish brown spots," says he who first described this species, and that was Dr. Lindley. H. guttatus differs in nothing from H. olympicus states "W. G.," only in its "spotted" sepals, and these are not sufficient to constitute a distinct species, pointing only to variety. Why multiply names *ad infinitum?* It strikes me that H. olympicus punctatus would be better than multiplying species when differences are so slight.

H. abchasicus differs not but agrees with the "texture and division of the leaves of the last"—viz., H. guttatus, "but is much taller in habit, rather smaller flowers of a rich deep purple colour." Surely a taller plant with purple flowers, in which it alone differs from the type, is not sufficient to transform a variety into a species. "W. G." would have done well to have left it as it is found in gardens—viz., H. olympicus rubra. "Nearly allied to this species" (H. abchasicus?), "is the Hungarian H. atro-rubens," writes "W. G." He might have added that H. atro-rubens is the H. abchasicus of continental gardens, and as grown in gardens they are identical.

H. colchicus as described by "W. G." is very different from the one I have under that name, which though it be somewhat an exaggerated H. olympicus with purplish flowers, is of unquestionable identity with the last. H. olympicus purpureus would satisfy its extra claim.

H. guttatus, H. abchasicus, and H. colchicus as I have found them in gardens are only so many forms of H. olympicus, due it may be to incorrect nomenclature, though quite as likely to diversity of soil and climate. Of their identity in botanical collections I know nothing, my remarks apply exclusively to the forms as found in gardens.

"W. G." takes exception to my describing H. olympicus with "palmate radical leaves." Dr. Lindley, who first, as before stated, described this species, states "From Helleborus orientalis it differs in having palmate not pedate radical leaves, &c. From H. niger it differs in its leafy scape being much longer than the leaves, which are palmate, &c. From H. atro-rubens, to which it is nearest, in its much larger pallid green flowers, rounder sepals, and broader, palmate, not trifid, floral leaves; the leaves, moreover, are much more leathery than in that species." This latter comparative description of H. olympicus completely disposes of "W. G.'s" criticism, H. colchicus, except the colour which may be accounted for in much the same way as Hydrangea hortensis, having pink flowers grown in some soils and blue in others.

Again, "W. G." thinks I shall not find one kind of Hellebore with palmate radical leaves. Surely H. odorus, H. purpurascens, and H. olympicus have palmate leaves; but when erudite doctors differ, who shall decide? My H. olympicus threw up its forked stems in late autumn, and being lifted was placed in a cool house, and the flowers expanded in December. Had the plants been left to the tender mercies of the weather I doubt their flowering before April, if at all, from showing so early and having to pass through such a winter of prolonged cold.

I may say that Hellebores are valued by me only from a horticultural point of view, and that I find the best are H. niger maximus, the finest form of the Christmas Rose, the earliest and the largest-flowered. H. niger and var. minor, H. orientalis, H. olympicus, H. atro-rubens, very handsome; H. odorus for its scent; and H. purpurascens, which must give place sooner or later to improved varieties for garden culture.—G. ABBEY.

YOUNG GARDENERS AND THEIR DIFFICULTIES.

I HASTEN to endorse your advice to your correspondent "YORK." I know from experience that your advice is sound to him under the circumstances. Let him derive information from anyone, no matter from whom so that he obtains it, and his failures will only make him prosecute his work with more assiduity.

If "YORK" knows, as I presume he does, the theory of cropping a kitchen garden, he will soon learn to crop it with advantage, and this he will arrive at by ascertaining the needs of the kitchen. When I first took charge of a garden I began in the way I had been used to where I had left; but to my sorrow I soon found out that my tastes were not those of my employer, and until I discovered his wishes I was as miserable as your correspondent is at present. I was rather careless about the vegetable department, but I soon found that department was the most important; and if all was not forthcoming there, no matter what I had besides, it was very little thought of. All this time it never struck me to resign, as I felt assured that I should succeed as soon as I could find out what would be required of me. This accomplished, what I needed most I sowed and planted most of, still keeping up a supply. But best of all, I took my employer into consultation by way of ascertaining what he would like, and by this means I managed to put him in for part of the blame when anything went wrong or was not to hand.

Another thing I did which I would heartily recommend to all my brother gardeners—I made friends with the cook. No gardener ought to be above doing that, at least I consider he would be foolish to quarrel with that culinary official. So that now, for "YORK'S" encouragement, I may say I have no trouble in supplying all demands. Of course I have occasionally a misfortune, as all must have sometimes; but my em-

ployer has confidence in me, and knows it happens under circumstances over which I have no control.

In conclusion let me say to "YORK" and others like him, Go on, as there are but few men who have not had to pass through many trying circumstances still more trying than that which you are in at present. Take the advice the Editors gave you. Persevere, be punctual and have patience, and success will ultimately crown your efforts.—B. G., *Co. Down.*

I SYMPATHISE very much with your correspondent "YORK." He is just beginning his day's march and needs some little encouragement. Those who have conquered such perplexities can best sympathise with those who are placed in such a position as your correspondent, for they have felt how inadequate they were themselves to perform effectually the various duties pressing upon them, and how anxiously they have turned everywhere to discover any prospect which might lead them out of the labyrinth in which they were involved. An earnest perseverance to get on is half the battle, and the indomitable spirit which he may command by reading and study will lead him through all difficulties and eventually overthrow the barrier which seems now placed before him.

I was somewhat in the same state of embarrassment in my first place as head gardener, and I could not see the slightest possibility of succeeding, which made me much inclined to run away. I used to feel that if once I left the place my troubles would cease; but when I saw that another loadstone, but of of a different nature, was waiting for me, I made up my mind to brave the storm like a sailor on a furious ocean. I hunted out my cargo of books—only a small one—and provided myself with a good pocket book, and then set about reading the books I had, which were written by practical men, and what I found therein which applied to me I extracted. I examined every weekly calendar which came in my way, and from them I determined what was most required in my place. I noted down in my memorandum book work for the next day, and when night came I retired to my room and gave notice to the outsiders that there was no admittance. I then entered work done, proceeding to determine the work for the following day, and so continued from day to day, keeping in mind what was most demanded from my garden and leaving the rest of the work until I could attend to it. I obtained the *Journal of Horticulture* from the office, which was my greatest support. When I found that I was progressing favourably I began to add to my list of books, and I did not leave a leaf unturned, but sought for everything likely to be useful to me. My employer used to put me right about face sometimes, and I did not forget to enter it in my book and its cause, but I took immediate steps to make amends for it as soon as possible. What I mean by amends was to make the best of my failures and not be discouraged: that is one great point for a young man to consider, because if he once allows himself to feel thoroughly discouraged he will find that he is more embarrassed than ever. Very often from trifling faults a young gardener may find out his employer's tastes and wishes, and may reap great benefit from a little censure.

Let all perplexed young gardeners, and there are many, bear this in mind, keeping close to their work and books; and if their employers have cause to find fault remedy it at once as far as possible, and when that is done forget the fault, bearing in mind not to allow the same thing to occur again. Do not allow the work of the following month to occupy the mind. Be content to look forward to a week's labour only for the present, still keeping time with the season, and by so doing they will find that troubles will disappear. The first year is usually a trying season for such young men. Again I say let them not be discouraged by any failures, but at the same time note them down and their causes, and make the best returns they can in other ways. For the present go steady, one step at a time, and all will turn out well at last. I wish "YORK" and all who are similarly placed every success.—E. G. JACKSON, *Brandsby Hall Gardens.*

UNDER the above heading I have observed some very interesting remarks. Mr. J. Addison says, "Do the necessary work first, and if possible finish one job before beginning another." Now to my mind this is the only safe way to make the best of matters, as, if the plan is carried out for a year, whoever does it will be able to report progress. If the right thing is done every day work is sure to go right, and if the men finish one job before beginning another, things so far as the ordering of the labour is concerned are safe to be made the most of. I think young gardeners should do their duty, keep their character good, and improve their intellect. But after a gardener has had a fair start he has not got over his difficulties, he has only become more competent to surmount them, and to make the best of the means at his disposal, then obstacles will give him little concern.—R. M. A.

ON reading the communication headed as above in the number of February 13th I was forcibly reminded of my own early difficulties, and my sympathies were enlisted at once for my brother gardener "YORK" in his perplexed condition. I may say in passing that my debt of gratitude to the *Journal of Horticulture* is so great for assistance rendered to me by the Editors (especially the senior one, Mr. G. W. Johnson), twenty-two years ago, that, despite my dislike to "appear in print," I yet thought I must say something that might perhaps meet the case of "YORK," though nothing could be sounder, wiser, or more judicious than the editorial advice given to your correspondent by you at the end of his letter.

I have had in a smaller way my course to make upwards into my present position on much the same ground and under the same conditions as your correspondent. I started my professional career with more ambition and zeal than knowledge and skill; but I was blessed with a most liberal and considerate master, and advisers in the persons of our Editors, also with a buoyant hopefulness of constitution and spirit that nothing could daunt. I did not know when I was beaten, and though often faint through many failures, yet I pursued and tried again. The result is a fair position now, and perhaps a better in the future. Anyhow, I am content.

Out of this experience of mine I think I may without vanity (though I do not set myself up for a teacher), draw out lessons of wisdom which may be of use to "YORK." The first things I would advise him to cultivate would be a quick and close observation, a large and never-failing stock of patience, and unceasing industry. These three things will carry him over many if not all his difficulties. Added to these, I would say, Read closely all practical works, but more particularly the *Journal of Horticulture*, and all the thoroughly reliable works which emanate from 171, Fleet Street. They are all solid, simple, and practical. Read these and digest what you read, by that means making your reading your very own. Then, when well digested, put the result of it into practice at once. The man that hesitates loses an opportunity, and opportunities lost in gardening (for the seasons go on whether you do or not) are difficult to redeem.

On your entry into your new place be very gentle, kind, patient, and courteous, yet firm withal, to the men left on it. Speak a few appreciative words to them. Suggest to them, most of all, the need there is, until you get settled and familiar with things, that everything shall be carried on by them as usual. First talk these things over with them, and from your reading, thought, and experience you may suggest a few ideas which will be new to them, but which will show them that you are not ignorant of your work. Above all things avoid that habit which some thoughtless people fall into of speaking slightingly and disparagingly of your predecessor. However much there may be on the place to justify you in doing this, do not do it—do the very opposite. Speak often of his good parts, his intentions, and his skill, and the men will recognise your charity and treat you in the same spirit. Set an example of willingness to work; never shirk work; head your men in it; do not drive them to it; work with them. Be punctual in your times of starting and leaving work. Be careful of the men's meal times, and see that they have a comfortable place for taking their meals in if on the premises, with a good fire in bad weather. Let their wages be ready to the minute, and pay weekly if possible, and on a Friday night. Keep the beer bottle out of the garden at all cost. Finally, keep on good terms with the cook. To you she is the most important personage on the establishment, and her consideration and kindness towards you will be of inestimable service.—EXCELSIOR.

LINUM TRIGYNUM.

THE comparative scarcity of this beautiful winter-blooming plant is in a great measure to be attributed to its red-spider-breeding propensities, for I know of no plant which it so persistently attacks as this. But that may be partly obviated by growing it, as Mr. Harding suggests, in a greenhouse temperature during the summer months along with Fuchsias, &c., where it should be well syringed twice a day, taking care that

the stream of water is directed chiefly to the under side of the leaves. But I feel confident that the best way to grow the plant would be to plant it out along with Bouvardias, Salvias, &c. The same remark applies to that charming blue winter-flowering plant Eranthemum pulchellum. I saw some doing remarkably well in Switzerland last summer, where they were planted out in a partially shaded border. They were cut-back plants the previous spring, and were hardly recognisable on account of their dark green foliage and sturdy habit.

There is no better trio of winter-flowering plants than the scarlet Poinsettia, the yellow Linum, and the blue Eranthemum, and no garden should be without them where an intermediate temperature can be commanded during the winter months.—A. W., *Lincoln*.

THE WINTER IN MID-SURREY AND ITS EFFECTS ON VEGETATION.

THE winter has been the most severe and continuous we have had during the ten years I have been located here. In point of extreme cold we have not registered so low by several degrees as many other places both north and south, still it may be of interest to some of your readers to note the damage done to vegetation under the following conditions. This place (Coombe Bank) is pleasantly situated on one of the Surrey hills about ten miles south-west of the metropolis, and is about 77 feet above the level of the sea. It is partly sheltered from the north and north-east by a distant wood. The soil is very light and gravelly, and the growths of shrubs and trees are usually well ripened before the advent of cold weather.

The winter commenced in earnest on Thursday, Dec. 5th, last year (although from the 1st of the month the minimums were only a degree or so above freezing point), and continued without a break until the 26th of the same month. Thus for a period of twenty-one days the minimum temperature on each day was considerably below freezing point, while the greatest maximum temperature in the same period was 43° on Friday the 6th, and only on two other occasions did the maximum reach 40°. Eight times it rose above 35° and under 40°; once it registered 34° and twice 33°, and seven times 32° and under; the lowest maximums being 29° on the 11th and 15th of December. The lowest minimums recorded within these three weeks were on the nights of the 22nd, 23rd, and 24th, on which nights 16°, 14°, and 11° were registered, or 16°, 18°, and 21° of frost on the respective nights.

During this period there had been several slight falls of snow, but nothing remarkable, and both frost and snow rapidly disappeared on the 26th of December. The generality of the frosts were very white, and on several days and nights much fog prevailed. The damage done to vegetation during that period was very trifling. Myrtles and Eucalyptuses were only slightly injured. Vegetables, with the exception of a few Broccoli, were uninjured. Parsley and Spinach were able to be gathered as freely and as fresh during the next few days of fine weather which followed as before the frost. But these six days of milder weather suddenly changed on January 2nd, when frost set in again for twelve consecutive days; next followed two days without frost, but the minimums were only just above freezing point, when for nineteen days longer the earth was sealed; yet at no time during this month was the frost severe. The lowest point the thermometer fell to was 14½° on Sunday, January 12th; therefore the damage done to vegetation, of which I have to note, could not have been caused by the extreme frost.

Taking a walk around the garden I find that Ceanothus Arnoldi, azureus, Veitchii, &c., are all more or less injured. Those that have escaped much injury are in very favourable and sheltered spots, while those trained on an east wall are apparently nearly dead. Aucubas have some of their leaves surrounding the stems somewhat browned. The young unripened shoots of the common Laurel are injured, the older and better ripened foliage remains unhurt; Portugals untouched. Berberis (Mahonia) aquifolia very brown in places. Rhododendrons safe, and the flower buds apparently quite firm and perfect; some few leaves around the stalks of the hard wood are slightly injured. Wellingtonias have in places suffered very much indeed, especially those planted in very exposed positions, while many that gained shelter from any other shrubs near them are quite green. Cupressus macrocarpa is very slightly touched; some few tender points hang down and are crippled, while the robust-growing Abies Douglasi is in some situations quite brown. Cedrus Deodara is quite safe and uninjured. Many Roses, especially Teas, and with me also Cheshunt Hybrid, are injured. I recently saw a batch of over twenty standards of the H.P. Rev. J. B. M. Camm quite dead, and these were planted at the back of numbers of others, and were somewhat protected from the worst of the blast. Why these were all taken and the others left remains a mystery. How this Rose has fared with others it would be interesting to know. While on the subject of Roses it may be well to remark that there cannot be any doubt that before the spring has passed away there will be many complaints of large pieces of Rose trees dying away. The frost attacks the old ripened wood very often near the root, in the form of a ring or black crescent; the top will remain green for a time and the buds may break, but eventually the branch must succumb. Golden and Silver Queen Hollies and Olea Haastii are very slightly damaged. Escallonias and Euonymuses of all varieties are much injured, as also are Bays, some of which will die. Garrya elliptica is very hardy and only slightly touched. Azaras very slightly injured, but, perhaps, rather sheltered. Grevillea robusta has proved very hardy indeed. Arbutuses being also hardy are unhurt. Laurustinus almost unhurt, and possibly a few solitary flowers may even yet open. Eucalyptuses are quite dead. Red Cedars injured slightly. Cryptomeria japonica in some places has turned very brown, while a plant of C. elegans quite 11 feet high and a handsome specimen has not sustained the least damage. The leaves of many Ivies are injured, especially those on east walls.

Among the kitchen garden crops there is a fearful wreck. The leaves of Spinach and Parsley are entirely killed. Numbers of Broccoli killed, some remain unhurt. Endive, the Broad-leaved, spoiled. Turnips had the tops killed, and the frost so injured the Curled and other Kales that they taste very strongly. Many other casualties I could note, but my list is already long enough to show that the winter has been unusually severe.

Was it the frost that did all this damage? I think not. Certainly not the first frost, which went, as it came, most quietly. But it was the dry piercing east winds that commenced on Wednesday the 8th ult., and continued for several days, which proved so fatal. The wind on the 8th was so fierce that the dust blew along the roads in blinding clouds, more so than is generally experienced at any time during the fiercest of "March winds."

It may not be out of place here to note that my employer, instead of killing all the "dear" birds, has derived much pleasure (he being confined to his room), by having had them regularly fed every morning during the hard weather within 5 or 6 yards of his sitting-room window, and the following birds he has noted have approached within this limited distance to partake of his hospitality—rooks, jackdaws, blackbirds, thrushes, redwings, starlings, hawfinches, chaffinches, robins, sparrows, hedge sparrows, ox-eye tomtit, blue-headed tit, and black-headed tit. Wrens have never been seen to feed with the others, although they frequent at the same time the conservatory close by.—J. W. MOORMAN.

P.S.—Several observers near here registered on December 25th, 23° and 25° of frost. There are great differences to be found at short distances apart, depending greatly on the position of the thermometers. For three weeks in January neither the sun, moon, nor stars were visible, and the night and day temperature was remarkably even. Now, on the 21st of February, we have 7 inches of snow, and have been obliged to beat the snow from the shrubs to prevent them breaking down.

NOTES AND GLEANINGS.

THE fifth INTERNATIONAL POTATO EXHIBITION will be held at the Crystal Palace on the 17th and 18th of September next.

—— THE thirty-sixth anniversary dinner of the GARDENERS' ROYAL BENEVOLENT INSTITUTION has been fixed for July 2nd at the Albion, Aldersgate Street; Mr. Serjeant Cox will preside on the occasion.

—— AT a meeting of the acting Committee of the REIGATE ROSE ASSOCIATION held on Saturday last, it was settled that the Summer Show be held on Wednesday, July 2nd, in the beautiful grounds of Alfred J. Waterlow, Esq., Great Doods, Reigate.

—— WE are glad to observe that the SHROPSHIRE FLORAL AND HORTICULTURAL SOCIETY is in a flourishing condition. The financial statement accompanying the schedule shows

that the income last year (including a balance of £728 5*s.* 1*d.* from 1877) was £2009 15*s.* 7*d.*, the expenditure having been £1069 12*s.* 2*d.*, thus leaving a balance in favour of the Society of £940 3*s.* 5*d.* It is only by a combination of good management and good support that such a gratifying result could have been achieved. The Exhibitions of the Society for the coming year will be held on July 3rd (Roses); August 20th and 21st, summer Show; and November 20th, Fruit and Chrysanthemum Show. A few classes are open to all competitors, the principal one being the class for twenty stove and greenhouse plants, for which prizes of £25, £15, and £10 are provided. Messrs. Adnitt and Naunton are the Honorary Secretaries of the Society.

—— WE are informed that the annual DINNER OF THE HORTICULTURAL CLUB will take place at the Club house on Tuesday, March 11th. The chair will be taken by John Lee, Esq., and the vice chair by the Hon. and Rev. J. T. Boscawen.

—— THE Editor of the "ROSARIAN'S YEAR-BOOK," which was referred to on page 132, states that "G. S. S." is right in his conjecture. Sénateur Vaisse was a misprint for Sénateur Favre, and was not discovered until it was too late to correct it. We have received a letter also from Mr. George Paul to the same effect.

—— A RETURN has been made pursuant to an order of the Central Markets Sub-Committee, dated January 23rd, 1879, of the receipts and expenditure on account of the LONDON CENTRAL FRUIT, VEGETABLE, AND FLOWER MARKET up to the present time. The following are the receipts:—Loans raised, and premiums thereon, 1875, £5000; 1876, £110,725; 1878, £15,440. Total, £131,165. Transfer from Central Poultry and Provision Market for land and approaches, £63,000, making the total receipts £194,165. The payments during the four years that the preliminary work has been going on are: Purchase of premises, and interest on purchase moneys, less rents for temporary occupation, £136,523 10*s.* 11*d.*; law charges, &c., £2333 14*s.* 11*d.*; stamp duty on conveyances, £800; surveyor's charges, £857 19*s.*; accountant's charges, £26 5*s.*; rates, taxes, &c., £88 10*s.* 2*d.*; lithographing and printing bonds, £147 2*s.* 6*d.*; plans, £64; contract for excavating site, and constructing western roadway and approaches, £57,800; constructing vaults, &c., and reforming roadway, £459 10*s.*; sundry works, £1 14*s.* 5*d.*; interest paid on loans less allowed on balances in chamber, £10,525 10*s.* 9*d.* Total expenditure, £209,627 17*s.* 8*d.* The amount authorised to be raised is £250,000, of which £131,000 has been raised, leaving a balance to be raised of £119,000. The balance at present overdrawn is £15,462 17*s.* 8*d.*—(*City Press.*)

—— WHILE SNOW has been far too plentiful in many districts during the present protracted winter, London was singularly free from it until the morning of the 21st inst. Until the fall referred to the ground had not been covered more than an inch, although in more southern counties than Middlesex and Surrey the ground has been rather deeply covered. The snowstorm of last Friday morning was remarkable alike for its suddenness and its severity. The day previous was one of the finest of the year—the spring-like morning giving hopes that garden work would shortly be resumed in earnest. The snow commenced falling at 5 A.M., and by 8.30—three and half hours—it varied from 6 inches to a foot in depth in the metropolitan district. Trees and shrubs were enveloped as if in a shroud, and had not a slight breeze occurred when the snow was light and dry many branches must have been broken and specimens injured. Groundwork in gardens and nurseries has been once more seriously interrupted, and the season being so far advanced great difficulty must necessarily be experienced in bringing up arrears.

—— MR. W. SHARP, Pitfour, writing to us on the 19th inst. on the WEATHER IN SCOTLAND states, "For five days rain, sleet, and snow have fallen incessantly, the ground is covered 6 inches deep, and the snow continues falling. Nine degrees of frost were registered this morning. At Forfar there is an average depth of 12 inches of snow. Labour of all kinds is very far behind, and agriculturists, nurserymen, and gardeners are complaining sadly. I have now been a gardener for upwards of fifty years, and never remember such a long-continued succession of frost and snow. The fruit buds of Peach, Nectarine, Apricot, and Plum trees on the walls are no further advanced than they were in November, and not the vestige of a spring flower has been seen in the borders here since the middle of November. The lowest temperature we have had this winter was 9°—23° of frost. In the year 1838 the temperature was frequently at zero. I was at Eglinton Castle in 1860 and 1861, when the temperature was frequently 4°, and one night 6° below zero."

—— PROBABLY few branches of industry show greater advancement during the last quarter of a century than the SEED TRADE of this country. The great increase of the trade can only be fully appreciated by referring to the "small beginnings" of firms. We have just been comparing Carter's seed catalogue of 1848 with their Vade Mecum of 1879. The contrast between the two is most striking. The former consists of thirty-two pages, note paper size, of common blue paper, without any illustrations; the latter is a work comprising ninety pages of more than twice the size, and teems with illustrations. Several vegetables in the old list are still retained in the new, which is good proof of their excellence. Amongst them we note Carter's Victoria Pea, which was then 3*s.* per quart, now 1*s.* 6*d.*; and Champion of England, priced at 5*s.* per quart, now 1*s.* 6*d.* Potatoes in the old list are disposed of in less than a square inch of space, this year they are honoured with 250 square inches; and while the space of 6 square inches sufficed for the agricultural seeds in 1848, now a bulky separate catalogue is needed for them.

—— ON the 17th of February a number of the principal gardeners of Liverpool and a few friends assembled at the Public Rooms, Aigburth, for the purpose of making a PRESENTATION TO MR. HINDS on the occasion of his relinquishing his post as head gardener to Sir T. E. Moss, Bart. The present was a handsome gold watch, which was supplied by Messrs. Elkington of Liverpool, and bore the inscription: "Presented to Mr. Wm. Hinds by gardeners and friends of Liverpool as a token of respect on the occasion of his leaving the service of Sir T. E. Moss, Bart. Liverpool, Feby. 17th, 1879." The gift was in recognition of the sterling worth and good character of Mr. Hinds, and the able manner in which he had represented Liverpool as a horticulturist. He was always willing to render assistance to objects relative to gardening either personally or with his pen. Mr. Hinds has during his seven-years stay in the neighbourhood won the esteem of those with whom he has been brought in contact from time to time. Mr. Bramham presided over the meeting, with Mr. Tunnington as Vice-Chairman, and the presentation was made by Mr. Francis of Rosemount, and suitably acknowledged by Mr. Hinds. After the presentation, the advancement of horticulture in Liverpool was referred to at some length.

—— REFERRING to the note on LAWNS on page 134, a correspondent, "R. A.," considers raw bone meal much preferable to superphosphate for dressing lawns on account of its long-lasting qualities. He also disapproves of the use of salt for killing weeds on lawns, but does not suggest a substitute. We supply the deficiency by stating that a drop or two of sulphuric acid applied well into the crowns of the plants will kill Plantains, Dandelions, Thistles, and such like weeds that so commonly disfigure the turf.

—— CREOSOTE—CAUTION.—Before placing plants in any structure, the wood of which has been painted with the thin preparation of creosote (the common thick sort cannot be recommended), it is necessary that the smell of creosote should have passed off, as it is most injurious to plants, and especially to those having young and tender foliage.—OBSERVER.

—— RESPECTING large IVY STEMS, "A KITCHEN GARDENER" writes, "In a large old Oak wood here many of the trees are covered with immense bushes of Ivy. I measured the stem of one of these to-day, and found it 30 inches in circumference. Many of them a little smaller than this are straight and leafless for 10 feet. I think it would be interesting to know the thickness of some of the large Ivy trees in the country, and would be obliged if anyone would say if Ivy wood is valuable for any special purpose."

—— GUANO now-a-days is so frequently adulterated that a test stated to be infallible and at the command of everyone is worthy of note:—Hold 1 oz. of guano in an iron spoon over a fire till it burns to a white ash, which if the guano is unadulterated, should not weigh more than a quarter of an ounce.

—— WRITING to us on the SUNLESS SEASON AND THE EFFECTS OF FROST Mr. Peach observes—"I hear the same complaint everywhere about forcing plants. It is not merely the cold but the want of sun and light that prevents progress; and what those gardeners do who have old-fashioned houses with small panes, deep rafters, and low stages I do not know. Here this winter I cannot even induce the Azalea indica to

open in the stove, though I have had a plant in for two months and the buds are hardly swelling yet. Even the Cytisus refuses to bloom. The more I examine the Roses in the garden the more damage I see, and I fear some established plants of Euonymus (gold variegated) are quite destroyed, which have been out with me several winters now uninjured. However, it is no use dwelling on our disasters, and we shall not know the worst till spring weather really comes—if it ever does come."

—— THE Hon. Secretaries of the NATIONAL AURICULA SOCIETY inform us that Mr. W. J. Barns of Bristol, the maker of the patent square hand and cap glasses, proposes to supplement the prizes of the National Auricula Society's Exhibition of April 22nd next ensuing as follows—Class I, fifty plants, first prize one 20-inch handglass. Class A, twelve plants, first prize one 18-inch ditto. Class B, six plants, first prize one 16-inch ditto. Class C, four plants, first prize one 14-inch ditto. Class D, two plants, first prize one 12-inch ditto. Class K, twelve plants, first prize one 21-inch cap glass. Class L, six plants, first prize one 21-inch cap glass. Class N, six plants, first prize one 20-inch cap glass.

—— "A. G. J." writes to us as follows on the WEATHER IN PERTHSHIRE:—"The ground is still covered with snow to the depth of from 9 to 10 inches. We have done little outside work since the 25th of November, consequently the work is very far behind. If a thaw sets in at once it will take two or three weeks before the ground will be in good working order, the frost being from 18 to 20 inches in the soil. We have only had six nights without frost since Christmas."

SCENTED ROSES.

YOUR correspondent "C. P. P." in writing on Chrysanthemum and Rose judging makes the following remark: "One of your correspondents would cut out all Roses that were not sweet." I am not sure whether or not this remark applies to me. I certainly did say and repeat that scent should have some weight in judging Roses.

Rose shows, I apprehend, are to encourage the production and cultivation of Roses; and on this ground I maintain that some special encouragement should be given towards producing them with scent. A Rose can never be said to possess all its good qualities when it lacks the charm of sweetness. It is as natural for Roses to be perfumed as for fruit to be sweet; and however we may differ in regard to colour or shape, there can be no two opinions regarding a richly perfumed Rose and a scentless one.

Take as an example those two grand Roses—Baronne de Rothschild and La France. After admiring their beauty we instinctively hold each in turn to our nose, and with the following result: the Baroness is withdrawn with a feeling somewhat akin to disappointment and of there being something wanting; but with La France a delicious odour greets us and a pleasure steals over us that is as grateful as it is delightful, giving a sense of satisfaction that is entirely wanting in the other. But this is far from cutting out all Roses that are not sweet. I should miss as much as anyone such splendid Roses as Duke of Edinburgh, Comtesse d'Oxford, Madame Lacharme, Etienne Levet, Comtesse de Serenye, Duchesse de Vallombrosa, &c., though they are scentless; yet I hold that Charles Lefebvre, Dr. Andry, Lord Macaulay, Alfred Colomb, Magna Charta, Louis Van Houtte, &c., are superior Roses, inasmuch as they possess an additional charm in their sweetness. I would therefore rather discourage the production of scentless Roses by giving additional favour to all new varieties that were richly scented, for in my opinion there is as much difference in a sweet Rose and one without scent as there is in a Marie Louise and a Beurré Diel Pear.—F. BOYES.

AMARYLLIS AND PANCRATIUM CULTURE.

BULBS of Amaryllis Belladonna are always sold ready prepared for flowering, and in this state might be flowered anywhere—in a pot of moss or a Hyacinth glass for that matter; but when the flowering period is over the bulbs will require cultivation in good loam under such conditions as will enable them to make a strong leaf-growth through the whole winter and spring, and this, to produce the best results, quite protected from frost. They will have now split themselves up into several divisions, and until the members of these clusters of bulbs grow large enough no flowers can be expected. It will generally take from two to three years to effect this. For the same reason cultivation in pots in the greenhouse is scarcely to be recommended on account of the bulky mass of foliage, large pots being necessary to feed the clump of roots alluded to, and this for a season or two without the consolation of flowers. They will flower freely under a warm wall in the south of England, sparingly so even as little northward as the midlands. In the latter case a glass protection of some kind to keep out frost in winter, and to keep in heat and drought in summer, will ensure success. They should, however, have free ventilation in winter whenever the air is above freezing point. I will refer to Pancratiums in a future issue.—R. T. CLARKE.

REVIEW OF BOOK.

Bulbs and Bulb Culture. Part I. By D. T. FISH. London: The "Bazaar" Office.

THIS is essentially a practical work. The pages are by no means silvered over. Here and there, indeed, there are a few small woodcuts, but these are far inferior to what we are accustomed to find every week in the horticultural papers. We remember once being present at a dinner party where a gentleman whistled to his own accompaniment on the piano. He first whistled a well-known air, and then he gave wonderful variations on that air. There happened to be present an old gentleman of severe countenance and majestic form. At the conclusion of the performance he said, "I liked the first part (the air) pretty well, but the second part, I don't know what *you* call it, but I call it playing the fool." Mr. Fish is very like that gentleman; he evidently considers that to give anything but the plainest information, told in a plain and detailed manner, so detailed as to amount in some cases almost to tediousness, is playing the fool.

The work is not limited to the culture of bulbs, but includes such plants as herbaceous Anemones, Hellebores, Hepaticas, &c., not because the author does not know what a true bulb is, for in his introductory remarks he well describes the differences between bulbs, corms, tubers, and rhizomes.

In the chapter on Snowdrops it is stated that the single form is fast disappearing—is, in fact, constantly running into the double form. Is this general? We are acquainted with about half an acre of Snowdrops growing in a natural state, and they have to our knowledge remained single for forty years. Some years ago a few patches of bulbs of the double form were planted amongst the singles and they have increased, but so far as can be ascertained not a clump of the single form has changed into the double. The change referred to, therefore, we suspect must be attributed to high culture—rich soil. The forcing of Snowdrops is alluded to, so as to have them in flower at Christmas. We have often had them in full beauty at that time by the mode described, but the author does not state that the single forces much more readily than the double form. Crocuses, and especially Tulips, are referred to at great length, and in the copious lists of varieties of the latter flower we observe that no mention is made of two of the finest exhibition and decorative varieties in cultivation—viz., Proserpine, very deep rose, and Chrysolora, yellow. Indeed, strange to say, not one yellow variety is included in the list of varieties for exhibition purposes. Hyacinths have also an extended notice, but the useful Roman Hyacinth receives scant attention, nothing being told of its origin and history, and only about three lines referring to its cultivation. The selection of varieties of the Dutch or Oriental Hyacinth is generally good, but we do not observe the name of the Von Schiller, which is, perhaps, the most useful single red variety in commerce, nearly every bulb producing a fine spike, which cannot be said of all the exhibition Hyacinths of this colour. In potting Hyacinths the author recommends the pots to be filled with soil made firm, and the bulbs to be pressed down into the soil "firmly home." This plan is never adopted by the most successful growers of Hyacinths for exhibition, as they know that the resistance offered by firm soil to the protruding roots often causes the bulb to be lifted out of the soil, or the plant to grow sideways. Narcissuses are treated of fully and well, and especially so are Lilies.

The chapter on this bulb seems to us the fullest and best worked out. We cannot think of any information that the lovely Lily requires that is not supplied. First the different members of the family are stated in detail according to the classification given by Mr. Baker of Kew. Then numerous questions are answered.

Other flowers, we presume, remain to be treated of in the

next part. We offer our congratulations to Mr. Fish for having given to the public so useful a handbook on popular flowers.

ANEMONE SYLVESTRIS.

THIS is called the Snowdrop Anemone, from its graceful drooping flower buds resembling those of the Snowdrop. It is one of the larger species, growing 12 to 18 inches high. The foliage forms a dense mass of tripinnated leaves of a fresh green colour; and the flowers, which are pure white, are individually very like those of A. japonica alba. It is very easily cultivated, growing well in any ordinarily good border. As a first-class herbaceous plant it should be in every collection, and its flowers are also very valuable for cutting. It flowers in the end of April and during May, and is a native of central Europe, found chiefly in sub-alpine woods and meadows.—R. D. TAYLOR.

Fig. 20.—ANEMONE SYLVESTRIS.

A PLEA FOR TULIPS.

NO flowers are more brilliant than Tulips, and few are more easy to grow. My plan is to dig out the beds 2 feet deep, wheel the soil away to top-dress the shrubbery borders, and refill with the top of a rather sandy pasture mixed with a little leaf soil to within 6 inches of the level of the grass, taking care that the soil as it is wheeled into the beds is made rather firm to prevent its sinking; then all that is needed is a plank placed across the bed, and the bulbs can be arranged on a firm bottom and perfectly level. The beds are then filled to the top with the above-named compost, planting being done in November.

I have left Tulips in the beds for the second year, and they have even bloomed better than the first season, taking care in bedding out the summer occupants not to cut the bulbs with the trowel, also to leave the plants untouched for three weeks after blooming to enable them to perfect their growth. A

sharp Dutch hoe is then run just underneath the surface of the soil, and the stems are cut off; the beds are then forked over for the summer plants. I have adopted this plan for several years. The place where I grew them lies only one mile north of the city of Gloucester, where many have been gladdened with the sight of a few thousands of Tulips in the early spring, the blooms having no protection whatever. I have found it a good plan to plant Tulips and Crocuses in alternate rows in borders, and so have produced two displays of flowers before the summer stock was planted out.

I well remember when a schoolboy passing an old-fashioned farmhouse on my way to and from school, and admiring a long mixed border of Tulips planted in clumps which were never taken out of the ground. The varieties I grew consisted only of the cheaper sorts, such as Garibaldi, Chrysolora, Cottage Maid, Duc Van Thol, Duchesse de Parma, Golden Prince, Lac Van Ryn, La Remarquable, Pottebakker, Keyzerskroon, Queen Victoria, Rose Gris-de-lin, Rosamundi, Standard Royal, Wapen Van Leyden, and Couleur de Cardinal, which can all be bought at a cheap rate, especially in large quantities.—H. S. J.

A SUBURBAN GARDEN AND ITS BIRDS.—No. 1.

THE graces of a suburban garden are by no means confined to the flower borders, lawns, and shrubberies, for even within the distant sound of Bow Bells and Big Ben there are many gardens so embowered in fine trees that fancy might relegate them to fifty miles from the metropolis; while the careful observer will be surprised to find that the few familiar songsters which we may have at first regarded as constituting the entirety of its feathered population are supplemented by many others, which, even if only occasional visitors, serve at one time or other to assist in adorning and enlivening its limits. We are within the radius, and when the wind is favourable can hear the mighty "Ben" toll forth the hour, or noon proclaimed by a dull distant boom far to the eastward. The roar of the great city is echoed by the thin stream of vehicles which filter countrywards, and yet when once within our garden of a few acres the landscape entirely removes us from the consciousness of the long avenues of brick and mortar, which here as elsewhere rapidly engulf the country round the margin of Modern Babylon.

Large lawns and flower gardens; a small meadow lying between kitchen gardens, converted from an extensive orchard of which a portion only remains; market gardens crowded with fruit trees flanking us on either side, and the whole limited at one end by an old perfectly country-looking farmhouse; views of a distant steeple or two and of tall Elms presenting the illusion of a wooded height, which embrace the neighbouring Bishop's palace—all these form a little oäsis in which the lover of natural history may still pursue his favourite observation. Nor are we exceptionally favoured; there are near us, and even nearer London, many equally beautiful secluded gardens, some of them attached to places of historic interest, the once favoured residences of notabilities of the last few centuries.

Our own place is stated on well-supported authority to have been the country home of Nell Gwynne, and to have been more or less favoured with the visits of her royal lover. Here we may imagine the kind-hearted frolicsome beauty, leaving for a while the fripperies and garish light of the greenroom and the stage, to play the part of the country hoyden, tripping saucily through the bloom-crowned orchard, or indulging with Charles and his light-hearted court in a right royal romp among the fragrant swathes of new-mown hay. Probably to about that date we may assign the planting of the grand old Chestnut tree, our chief pride, 10 feet in girth and of exceptionally beautiful growth, sweeping the very ground in summer with the tips of its far-extended leaf-burdened boughs. The old Mulberry can perhaps scarcely claim so respectable an antiquity, while a later date must certainly be ascribed to the Deciduous Cypress (Taxodium distichum), 66 feet in height, which we consider a fine specimen of a much too uncommon tree.

Of the birds, which are almost the domesticated friends of man, little need be said, excepting that besides the ubiquitous sparrow and the ever-welcome robin we have an abundance of blackbirds, thrushes, and starlings, either as constant visitors or resident all the year round. Of these latter the first two become more than ordinarily familiar in consequence of our protection, so that they nest with confidence in the Aucubas, Conifers, and small Irish Yews adjacent to the paths, which are traversed all day long, and offer no objection to a close inspection, provided it is not too frequently repeated.

During the earlier part of last season I often saw a handsome pied male blackbird which haunted the immediate vicinity of the house, and was doubtless the descendant of a more or less albino family which has for some years past been noticed in the neighbourhood. I fancy he fell a prey one Sunday morning to a horde of birdcatchers from "the Dials," who made a hasty swoop in our neighbourhood in the height of the breeding season. As our blackbirds commence breeding early and leave off late it is probable that they lay as often as three times, though I do not think that more than two broods are matured in the season. I notice that nearly all the early nests are abandoned after a partial or entire complement of eggs have been laid; whereas the later nests are sometimes occupied twice, and two broods raised in succession. This, I fancy, is unusual, and I do not remember to have seen it noticed before. The comparative merit of the song of the blackbird and thrush will be determined by taste; personally, I consider that of the latter far superior, and it must be remembered that it has the merit of being continued during more than twice as long a period of the year as that of his congener. Besides helping the blackbird to clear the garden of grubs, slugs, and worms, we find the thrushes destroy large quantities of snails, which they hunt out eagerly from the Ivy walls and bring boldly to the flat stones immediately outside the windows of the house, for the purpose of breaking their hard shells with facility. Starlings visit us daily nearly all the year round, and a few pairs remain to nest either with us or in a grand old Walnut tree immediately over our confines. As they were disturbed upon one occasion in one of their favourite holes in a tall Poplar, and we were apprehensive of their desertion, a plan common in many parts of the Continent was adopted with success, and artificial boxes converted out of short hollow or scooped-out logs were nailed high up in several trees. We have had the satisfaction of seeing one of these occupied for two successive seasons, and the broods safely hatched out.

The starlings are somewhat wary and suspicious. Attracted equally with the thrushes and blackbirds by the close-mown lawns, they only visit them in the early morning or during such periods of the day as they may hope to be secured from interruption. These they have learned to distinguish with some precision, putting in an appearance in sociable groups of from three or four to a dozen within a few minutes after the warning workman's bell has informed them that the coast is clear. They are ready on the least alarm to fly up into the adjacent Elms and Acacias, from which they watch their opportunity for another safe descent. For some weeks in the autumn I hear their long-drawn-out whistle and odd chuckling notes each morning soon after dawn in the leafy shelter of the Mulberry tree, which at that season is usually loaded with fruit, and serves as a focus of attraction for this and many other species.—J. P., *Fulham.*

THE LATE MR. GEORGE GALLOWAY—AN APPEAL.

THE melancholy death of Mr. George Galloway of the firm of Galloway & Graham, Glasgow, through mental derangement, has created much sympathy for his family—a widow and five children, who are left utterly penniless; and a fund has been started of which the Provost of Helensburgh is treasurer, for the purpose of doing something to alleviate their dire distress. As one who knew the poor fellow well and esteemed him I am desirous of obtaining some aid towards this end; and if any among the readers of the Journal can help I shall be truly thankful. Any donation sent to me by letter or left with the hall porter, Horticultural Club, Arundel Street, W.C., will be gratefully acknowledged.—H. HONYWOOD D'OMBRAIN.

The following sums are promised:—J. McIntosh, Esq., £5 5*s.*; Mr. George Paul, £2 2*s.*; Rev. H. H. D'Ombrain, £1 1*s.*

WOLFF'S GARDEN PENCILS.

I BOUGHT one of the above pencils of a seedsman in Croydon. Before leaving the shop I measured the pencil and found it 6 inches in length. From one end I cut off 1½ inch of wood before coming to the lead; on trying another pencil it was just the same. I object to pay 3*d.* for such a pencil when I

find that an ordinary 1*d*. drawing pencil answers my purpose. —A. CROYDON AMATEUR.

JUST a word in self-defence after what is stated at page 140 on this subject. I had the pencils from a respectable nursery firm, to them I complained that they were not what I thought they should be; their reply was that they were precisely the same as they were in the habit of supplying. This I considered sufficient opportunity to Messrs. Wolff's customers to put matters straight. I now send you all that was good in the one I cut; I have another I will send you if you wish with no lead visible at the blunt end. If I might take the liberty of making a suggestion to Messrs. Wolff & Son, I would say, Make it a point of having the lead through from end to end of your pencils, and then it would be distinctly seen at both ends of a bundle of a hundred or thousand if all the pencils were correct before leaving the premises.—A KITCHEN GARDENER.

[The pencil we have received is certainly faulty, as it only contains 2¼ inches of lead.—EDS.]

WORK FOR THE WEEK.

KITCHEN GARDEN.

WITH the ground in a sodden state, indeed in many places covered with snow, much important work must necessarily remain in abeyance; yet with the advent of favourable weather no time should be lost in sowing a good breadth of Early Horn and Intermediate Carrots, it being advisable to sow a portion of the former in a warm border, deferring the principal sowing, for producing roots for winter use, until April. The main crop of Onions should be sown as early as the ground is in a fit state. Sow also Lettuce, Radish, Cauliflower, Brussels Sprouts, Savoy, and Cabbage in a warm border—a narrow one at the foot of south walls is suitable, and if Leeks are not sown to transplant, sow in drills a foot apart so soon as practicable. A good sowing of Parsley may now be made, and Chervil to supply the place of the August-sown crop, which "runs" early in the season. Plant Horseradish in rich deeply trenched ground, this root luxuriating in vegetable soil. Vegetable refuse with a free admixture of sand is also a good application for Seakale. Portions of the roots, clean healthy parts from 4 to 6 inches in length, make very good sets, inserting them in rows 15 inches apart and a foot asunder in the rows, the top of the sets being just covered with soil. The plants not strong enough for forcing which have been reserved for planting should be planted, paring off the crown of each. Roots of Seakale that have been forced should be planted out in rows 18 inches apart and 1 foot from plant to plant. Rhubarb may also be planted out after forcing, but two or more years' growth is necessary before the plants are again available for the purpose, but very much better roots are had by selecting strong crowns from the older roots, and planting them in rows 4 feet apart and 3 feet asunder. The planting of the earlier kinds of Potatoes may be proceeded with in warm or sheltered borders. A good dusting of charred vegetable refuse, charcoal dust, or lime is beneficial in warding off slugs, and to some extent preventing disease. If not already done the stores should be looked over, and the tubers laid thinly where the first growths will not be endangered nor premature growth be promoted. The sets should be laid out singly in a place from which frost is excluded, cool and moist, so that the tubers will keep firm and make steady growth. Celery for the principal main crop should be sown early in next month, placing the pans in gentle heat until the seedlings appear, then removing them to a cool house, keeping them near the glass.

HARDY FRUIT GARDEN.

The continued cold has proved beneficial in one respect—namely, by retarding the blossoming of fruit trees, and should we have a favourable spring an abundant crop of hardy fruit may once again be produced. Fruit buds have not been so backward for many years past as they are now. This has afforded opportunity for completing the pruning of fruit trees generally, which from a press of weather and of work is often put off as long as possible. Proceed with any pruning of wall or other fruit trees still in arrears when the weather is genial, as pruning, nailing, and tying-in trees in cold weather is not only cruel to the operators but is a waste of time that might be turned to better account in work requiring more bodily exertion. Where standard Apple and Pear trees have arrived at a sufficient size to justify expectations of profitable crops, but which from some cause not apparent to the cultivator are not produced, the trees should be cut down preparatory to grafting them with other and approved sorts, it being well known that many varieties of the Apple and Pear, although of excellent quality in certain soils and localities, often prove to be very inferior in others, in which case it is useless striving to grow them. Scions of the required kinds may be taken off now and placed with the ends in moist soil. Fruit trees of all kinds may still be planted, securely staking them: they as well as those against walls, &c., should be well mulched with stable manure, as it tends to secure uniform moisture at the roots. Where it is necessary to make new plantations of Strawberries at this season ground should be prepared by well trenching and manuring it. Strong well-rooted runners of last season being available, defer planting them until they commence growing, and then lift them with a ball of earth to each, firming the soil well about the roots, and giving a good watering. Take advantage of fine weather to remove any decayed leaves from old plantations, to remove all weeds of a perennial kind by the root, pointing over lightly the spaces between the rows and plants.

FRUIT HOUSES.

Orchard House.—All the trees should be (if they are not now) placed in position. Apricots should have the lightest part of the structure, and where they can have very free ventilation, especially when the trees are in blossom, as it is essential that they be kept dry and free from drip, and then there is little fear of the blossom not setting. Apricots, from their exemption of attacks of aphis and red spider, do not require winter dressings or continuous syringings. Cherries, like Apricots, should be afforded a light and airy part of the house, as the blossoms do not set freely without a free circulation of air. Unlike the Apricot the Cherry is very subject to attacks of insects, so that winter dressing ought not to be neglected. All kinds of Cherries do well in orchard houses, and for the sake of variety it is desirable to grow several sorts. Plums also like a light and airy situation, and Pears and Apples should have the coolest part of the structure, whilst Peaches and Nectarines should have the warmest. In placing potted trees in their summer positions it is important that the pots stand perfectly level, placing them on three bricks in the form of a triangle, which will allow the superfluous water to pass away freely. In case of the pots being small for the size of the trees they may be stood upon the border so as to allow of the trees rooting into it, but the practice is not to be recommended except when the pots are very full of roots. The borders where the trees are planted out will have had the mulching removed, and had the surface slightly pricked over with a fork to a depth of about an inch, otherwise the soil being often firm and dry does not allow water to penetrate freely into the border. Give such borders a heavy watering as well as trees in pots, making the soil thoroughly moist. If Strawberries are fruited in this structure now is a good time to place the plants in position, surfacing the pots with rich compost, the old surface soil being removed. The pots may be placed upon the borders, but are much better near the glass. Sir Joseph Paxton, President, James Veitch, British Queen, and Cockscomb are admirable sorts for this structure. Regulate the ventilation in accordance with the state of the weather, and when frost is not apprehended the ventilators may remain open day and night, retarding the blossom as much as possible.

Vines.—The time for planting Vines is at hand, at least the borders should be made ready. The best soil for the purpose is the top 4 or 5 inches of a pasture—rich loam inclining to a sandy rather than a clayey nature. This should be chopped up moderately small, adding a tenth part of old mortar rubbish or chalk, and a twentieth part each of half-inch bones and charcoal thoroughly incorporated. Manure is best avoided, as it only induces undue vigour and is soon reduced to a close mass; dung is better applied as mulchings as required. The Vine requires abundant moisture at the roots, at the same time being impatient of stagnant water, hence drainage of at least a foot in depth should be provided, with efficient drains to carry off superfluous water. If the subsoil be wet bricks on flat run with cement will prevent the roots penetrating the unfavourable soil. Three feet is a suitable depth of border. It is desirable to plant inside the house, confining the roots there for the first year or two, then admitting them to the outside, the outside border not being made until required, and the apertures in the front wall being closed until that time. Vines intended for planting will have been pruned; if not, cut them back to three eyes, or, if planting in outside borders is contemplated, to such length as will admit of their reaching through the openings to the inside of the house, and dress the cuts with styptic or knotting. Place them in a cool house or pit to start, and when the shoots are 2 or 3 inches long remove all the soil, disentangling the roots, laying them out straight in the border, working the soil well amongst them, covering about 4 inches deep, and give a good watering at 100°, mulching over the surface with short litter.

For early forcing—Mill Hill Hamburgh and Black Hamburgh, Foster's Seedling and White Frontignan are suitable; Golden Hamburgh and Buckland Sweetwater are also good. Black Muscat grafted on Hamburgh is also worthy of a place. For midseason—Black Hamburgh, Madresfield Court, Frankenthal, and Black Prince, the whites previously named, and Duke of Buccleuch, with Muscat Troveren and Muscat of Alexandria. Late—Muscat of Alexandria, Lady Downe's, Alicante, Mrs. Pince, West's St. Peter's, and White Tokay; Gros Colman, Gros Guillaume, Raisin de Calabre, and Trebbiano having grand bunches, and require to be started not later than March, so as to have time

to ripen thoroughly; they are then fine in appearance and quality. For greenhouse—Black Hamburgh and Foster's Seedling.

If late houses of Grapes are not yet cleared of fruit they should be forthwith pruning the Vines at once, applying styptic or knotting to the cuts, dressing the Vines and borders, keeping the house as cool as possible so as to afford a season of rest. Look over Grapes in rooms, as one mouldy berry soon destroys a bunch, the more equable the temperature the better they keep. The room being dry and frost-proof they will keep plump. Muscats, Lady Downe's, and other late kinds may now be encouraged to move, as the fruit keeps much better when the Vines break early in March, time being allowed for the thorough ripening of the Grapes before the cold and sunless weather. The inside borders must be brought into a thoroughly moist state by the application of water at a temperature of 85° or 90°. Little advantage, if any, is derived by Vines started now from covering the outside borders with fermenting material, but a protection of litter or other material should be provided to prevent chill from cold rains or snow.

Early Grapes approaching the stoning process will require careful treatment, ventilating early in the day, affording a little air at 70°, increasing the heat to 85° with sun, closing at 80°, and if an advance follow to 85° all the better. Avoid cold draughts, they are more prolific of rust than anything else; and if red spider appear paint the return pipes with sulphur, keeping the evaporation troughs replenished with guano water, and water the inside borders with liquid manure at 80°. Disbud in the succession houses, and when the bunches show increase the temperature to 55° to 60° at night, 66° by day, rising to 70° or 75° from sun heat, maintaining a moist genial atmosphere. Tying and stopping will need to be attended to as required, allowing all the foliage that can have exposure to light and air.

Fruiting Vines in pots require generous treatment, such as liquid manure 10° warmer than the house in which they are growing, affording it also to the plunging material where the roots are allowed to find their way from the bottom of the pots, encouraging the Vines to make plenty of foliage, as close stopping only restricts the root growth, there being nothing like plenty of feeders to secure well-swelled berries.

Pines.—At the commencement of March a batch of suckers should be started, which are intended to afford a supply of ripe fruit from about December onwards through the winter and early summer months. The pots most suitable are 5 to 7 inch, they being perfectly clean and dry, draining them with about an inch of crocks of moderate size, employing fibrous loam torn up moderately small, rejecting the dust, ramming it firmly around the base of the suckers, and plunging in a bottom heat of 90° to 95° at the base of the pots. No water should be applied until new roots are formed, which will take ten days to a fortnight. A close moist pit is the most suitable place for these plants where they can be near the glass; they will not need syringing except the weather be very bright, when slight shading from midday sun and a light sprinkling with a fine syringe will be necessary about twice a week. The temperature should be kept at 55° to 65° by artificial means. Any plants in an unsatisfactory state should be shaken out, disrooted, and treated as advised for the suckers. It is advisable to leave the small suckers upon the stools until the end of May, which is a good time for another start. Stools, when the leaves are cut off, should be inserted closely together in any pit having a moderate top and bottom heat where light and air can be obtained. Plants started in December for fruiting will be showing fruit, it being desirable to advance the ripening as much as possible, the temperature being sustained at 65° to 70° by artificial means, with 5° to 10° more under favourable conditions. If the plants cannot be afforded a structure to themselves, which is advisable, they should be placed at the hottest end of the fruiting house. With the fruit advancing the plants will need more water at the roots, going over the stock once every week. Recently started plants should be kept at 65° by night and 70° by day, keeping the atmosphere for these and fruiting plants generally moist, watering as required with weak guano water.

Peaches and Nectarines.—In the earliest house tying and regulating the young growths will be necessary as they advance, in doing which allow plenty of room for the swelling of the shoots. Avoid overcrowding the foliage, every leaf should have light and air; those shoots retained to attract the sap to the fruit must be kept closely pinched to one leaf after having been previously stopped. Be not deceived by the syringing—*i.e.*, making the surface of the border look wet whilst the soil beneath may be too dry, but give good waterings, and if the trees are at all weak apply liquid manure. If the syringings morning and afternoon fail to keep red spider in check employ soft soap, 2 ozs. to the gallon of water, for under no circumstances must this pest be allowed to have its own way. The temperature should be maintained at 60° to 65° by artificial means, a fall to 55° on cold mornings being very much better for the trees than hard firing, which only induces attenuated growth; 70° to 75° with sun.

In the next succession house the trees will now want attention in disbudding, doing it gradually, removing the strongest and ill-placed, thinning the fruit where too thickly set by first removing the growths and those on the under side of the branches, but avoid wholesale thinning and disbudding. The temperature should be kept at 55° night in cold weather, 60° in mild, but a comparatively low night temperature is preferable to a high one; 65° by day, with an advance to 70° or 75° from sun heat, and free ventilation from 65°. Syringing must be practised morning and afternoon. The trees in the house started early in the month (not year as stated in last calendar) will be in flower, and must have attention in impregnating the blossoms by shaking the trellis or going over the blossoms with a camel's-hair brush. Syringing must cease whilst the trees are in flower, but the floor should be sprinkled morning and afternoon, avoiding cold currents of air, but ventilating freely. Keep up a temperature of 50° at night, 55° day by artificial means, advancing to 65° or more with sun, but not without full ventilation.

The house for affording fruit in late July or early August may now be closed, syringing twice or thrice a day until the buds show colour, when it must cease. Maintain a temperature of 50° by day, and 45° to 40° by night, advancing to 65° with sun. The late house should be ventilated very freely, merely excluding frost. Many late houses are unheated, which is a great mistake, as the blossom is not safe from severe spring frosts, and the Peaches do not ripen perfectly if the late summer be cold and sunless. A gentle heat during blossoming does much towards a good set, and in autumn artificial heat ripens the fruit and wood, plumping the buds wonderfully. See that the borders in all the houses do not lack water, but afford it liberally to all where the trees are in growth; outside borders protect with litter.

PLANT HOUSES.

Stove.—Increased daylight will permit of an advance of temperature—70° by night, 65° on cold mornings, 75° by day by artificial means, and 80° to 85° with sun. Admit air carefully; better none at all than allow a rush of cold air that brings the temperature down suddenly, yet admit a little at 75°, increasing it with the advancing temperature, and close with plenty of sun heat at 80°. Syringe lightly in the morning, and at closing time or early in the afternoon, so as to have the foliage dry before nightfall, and damp well down at five o'clock. Clerodendrons, Allamandas, and Bougainvilleas with other quick-growing plants are benefited by the application of weak liquid manure. Of Ixoras, Gardenias, Rondeletias, and others of similar character it is well to keep up a young stock. Cuttings strike freely at this time, taking them off with a heel, being careful not to bruise the bark. Allamandas, Bougainvilleas, Clerodendrons, and other quick-growing plants strike readily, choosing shoots of about 6 inches in length with a heel, inserting them singly in small pots well drained, two-thirds filled with sandy peat, and the remainder with sand. Bottom heat and covering the cuttings with a glass will facilitate the rooting.

Ferns.—Attend at once to the potting of these before the fronds are much grown, or the plants will receive a check not favourable to their growth. If large plants are wanted liberal shifts will be necessary, but if desired small the pot room must be restricted. The best soil for Ferns generally is peat with about a sixth of sand, adding for the lesser-growing kinds a similar proportion of crocks or charcoal. Although a humid atmosphere is most suitable to Ferns in the fernery, yet the fronds are so soft as to be of no use for cutting; those for the latter purpose should be grown in the light, and have no more moisture than is necessary for a generality of plants; and although the fronds so produced are paler in colour and smaller, they last in a cut state nearly as many days as the others do hours.

TRADE CATALOGUES RECEIVED.

John Laing & Co., Forest Hill, London, S.E.—*Select List of Tuberous Begonias.*

M. E. & H. Horley, Toddington, Beds.—*List of Garden Structures.*

W. Clibran & Son, Oldfield Nursery, Altrincham.—*Catalogue of Plants and Seeds.*

Robert Parker, Exotic Nursery, Tooting.—*Catalogue of Border and Aquatic Plants, Fruit Trees, &c.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (*Wothorpe*).—We do not know of any book on hybridising, but there are plenty of papers scattered throughout this Journal on the subject which will give you much information on the subject.

PLUNGE FOR SYRINGE (*G. S.*).—Apply to W. Palmer, 40, Campbell Road, Brighton.

FROZEN SEED (*York*).—If the seed had not germinated it probably has not been injured by exposure to cold 8° below freezing. Capt. Nares found, at Polaris Bay in the Arctic Regions a bag of wheat that had been there during four winters and three summers. Sir Joseph Hooker tested it at Kew, and found that sixty-two per cent. germinated.

DOWN ON APPLE WOOD (*A. A.*).—The down on the young shoots of the Ribston Pippin is perfectly natural, as natural as that on a boy's chin, and need cause no solicitude. The information you have respecting Lee's Prolific Black Currant is quite correct.

SEEDLING HYACINTHS (*G. Donker*).—Send them to the Floral Committee of the Royal Horticultural Society, which meets on the 11th and 26th of March. Save your Vine by all means; it will move perfectly well if carefully done.

CAMELLIA FLOWERS NOT EXPANDING (*J. Lewis*).—As all your Camellias except one have flowered freely, that one has either been kept too dry at the roots at some time, or too wet; or it may be the plant is excessively vigorous. There are a few varieties which do not expand freely. Not knowing the condition of the plant we can only state that the buds you have sent indicate that it was permitted to become dry for a few hours during the summer, which caused a partial shrivelling of the buds at that time, and from which they have not recovered. Permitting Camellias to become dry in summer after the buds are set is a fertile cause of their dropping in winter. Shrivelling of the closely enveloped petals often causes them to shrink at the base and partially decay, and then as the buds swell from the centre the outer (injured) petals are unequal to the pressure and break; this appears to have been the case with the flowers you have sent us.

HANGING GARDENS OF BABYLON (*T. T.*).—We have no additions worth printing relative to these gardens. All that we gathered from ancient authors is published in "The History of English Gardening." A notice of the founders of those gardens is in Rollin's "Ancient History."

STOVE FOR HEATING (*Nemo*).—We have not had experience with the stove to which you refer, and consequently cannot inform you of its heating power. The makers would give you the desired information. We think you may exclude frost with the aid of such stoves, but it would not be safe to indulge in any amount of forcing with them. All the plants you name will be quite safe provided the temperature does not fall below 34°.

HYACINTHS DRAWN (*Ramalho*).—All you can do is to remove the plants to the light, and the foliage will become green. Keep the glasses replenished with water as it wastes; no addition to the water would be of benefit. If the spikes do not elongate, perhaps a paper funnel placed over them for a week might be of assistance, but the foliage must have all the light possible.

CAMELLIAS FOR POT CULTURE (*E. F., Sidmouth*).—*Whites:* Alba plena, Fimbriata, Montironi vera, Alba casorota, Centifolia Alba, and Ninfa Egeria; Princess Charlotte, slightly tinted with rose, is very fine. *Rose:* L'Avenir, Principessa Vidoni, and Halleyi. *Red or Crimson:* Madame Lebois, Elatior, Benneyi, Manara, Imbricata, Maria Nicholais, and Bealli. *Striped:* Bonomiana, Souvenir d'Emile Dufresne, and Adelina Bemvenuti.

FLOWER-BED ARRANGEMENTS (*M. D. D.*).—Ignorance of your arrangements in past seasons necessarily renders our suggestions somewhat vague. Presuming that you require dwarf plants, for the terrace group of beds there might be in the central bed an edging of Sempervivum montanum, then a row of Kleinia repens, next a row of Alternanthera amœna spectabilis, next a row of Leucophyton Brownii with a central mass of Alternanthera amabilis latifolia. The two heart-shaped beds to be of Sedum acre elegans with an edging of Sempervivum californicum, and the four pear-shaped beds to be dark blue Lobelia Ebor with an edging of Santolina incana. The circle in the other group to be Coleus Verschaffelti with a broad marginal band of golden-yellow Geranium Crystal Palace Gem, or a golden tricolor Geranium. The four crescent-shaped beds to be Lobelia Mazarine Gem dotted with Fuchsia Sunray, and with an edging of Thymus variegata. This group being farthest from the house should always have a bolder and more massive style of colouring than the terrace beds. A dozen other combinations may readily be effected. If your lawn is well sheltered from high winds the central beds might advantageously contain some tall foliage plants, but such plants must never be ventured upon if there is any exposure to winds.

PLANTING SEAKALE (*J. Mundy*).—The roots may be planted in rich deeply trenched ground immediately the weather and soil are favourable for the work being cleanly performed. The rows may be 18 inches apart, and the sets a foot asunder in the rows. The terminal crowns should be removed, and growths will issue from dormant buds at the base. If the crowns are left they will only produce flowers, which if left exhaust the plants and retard the growth of the basal buds which must be depended upon for producing crowns for affording produce next year. The tops of the sets should be just beneath the surface of the soil. Read "Work for the Week," and follow the instruction there given.

EARLY CAULIFLOWERS (*B. D., Leeds*).—We fear that many besides yourself have lost their autumn-sown plants. You must sow seed at once in gentle heat or under glass in a sheltered position. A slight hotbed 2 feet high, covered with 3 or 4 inches of rich soil, and protected with glass placed about 6 inches above the soil, is the best place for sowing the seed. Sow thinly the Early Erfurt or its varieties, which produce heads nearly a fortnight sooner than Walcheren. Failing a hotbed you may sow the seed in boxes or pans, but much care is requisite in preventing the plants becoming drawn. See notes on "Sowing Seeds under Glass," in another column.

SELAGINELLA DENTICULATA (*H. W. P.*).—The above is the name of the plant about which you require information. It will pass safely through ordinary winters without protection, but it is usually wintered under glass. We have seen it employed as a carpet bedding plant, but it is only suitable for that purpose in moist and shaded positions.

PLANTS FOR CARPET BEDS (*Sigma*).—Besides the plants you name the following are serviceable: Mesembryanthemum cordifolium variegatum, Leucophyton Browni, Antennaria tomentosa, Kleinia repens, Echeveria secunda glauca, Sempervivum montanum, and very small plants of Golden Feather.

CABBAGE PLANTS CLUBBED (*G. D., Oatlands Park*).—The clubbing to which you refer is known as ambury, a disease peculiar to the Cabbage-worts, and is the most common in light sandy soil. Cabbage plants are frequently infected with ambury in the seed bed, which infection appears in the form of a gall or wart on the stem near the roots. This wart contains a small white maggot, the larva of a little insect called the weevil. If on the gall and its tenant being removed the plant is again placed in the earth where it is to remain, unless it is again attacked the wound usually heals, and the growth is little retarded. On the other hand, if the gall is left undisturbed, the maggot continues to feed upon the alburnum or young woody part of the stem until the period arrives for its passing into the other insect form, previously to which it gnaws its way out through the exterior bark. The disease is now almost beyond the power of remedies. Your heavily-manured soil would be much benefited by a heavy dressing of lime and salt; the former at the rate of 80 bushels per acre, the latter at the rate of 5 or 6 cwt., the whole being dug in as soon as weather permits and well mixed with the soil. The ambury may usually be avoided by frequent transplantings, for this enables the workman to remove the excrescences upon their first appearance, and renders the plants altogether more robust and ligneous, the plant in its tender sappy stage of growth being most open to the insect's attacks. As a further precaution, the plants before being placed in the ground should be dipped up to the leaves in a puddle formed of half soot and half garden soil, which adheres to the stems and roots and renders them distasteful to the insects.

TOMATOES WEAKLY (*Amateur*).—Your potful of plants now 5 inches high and thickly crowded had better be thrown away. With the means at your disposal you cannot possibly render such plants sturdy and fruitful. You will succeed much better by sowing more seed about the middle of March, not sowing it half so thickly as you appear to have done in the present instance. Packets of seed vary in size according to their cost and the newness of the variety. An ordinary-sized packet of the Orangefield contains sufficient seeds for sowing six or more 6-inch pots.

PELARGONIUMS (*Scrutator*).—Twelve good show varieties are—Artist, Corsair, Ruth, Prince Leopold, Purple Gem, Highland Lassie, Rosicrucian, Purity, Cicely, Nabob, May Way, and Prince Arthur. Six good fancies are—Princess of Teck, East Lynne, Ellen Beck, Acme, Undine, and Fanny Gair. Begonias will thrive in a greenhouse during the summer, but such a structure is usually too cold for them in the winter; but with care you may succeed in growing some of the tuberous varieties, which are dormant during the winter. The atmosphere of a greenhouse is too dry for Orchids to thrive satisfactorily; for although some of them do not require more than a greenhouse temperature they cannot endure strong currents of air. Our "Greenhouse" manual, 10*d.* post free, will afford you useful information.

SOIL FOR MELONS (*A Lady*).—The soil that you have recently laid up grass side downwards will answer admirably for Cucumbers and Melons, cutting it up rather finely with a spade, but is better with the turf reduced. Water should be applied to Melons overhead through a rose, taking care not to wet the neck or collar of the plants, and not to water them overhead when the fruit is setting or approaching the ripening stage.

VINES SUBJECT TO THRIPS (*Idem*).—The winter dressing will have destroyed the thrips or those reached by it; but if they appear during the growth of the Vines fumigate during a calm evening with tobacco and repeat the following evening, taking care that the foliage is dry, but having the floors, &c., well damped. Thrips are a result of too dry an atmosphere and a deficiency of water at the roots. The fumigation should be repeated, if necessary, until the insects are extirpated. Every available surface should be syringed twice a day, morning and afternoon. We damp three times a day—morning, noon, and afternoon—and do not syringe the Vines after they come into leaf; but it may be practised in the afternoon after the berries are set and until they change colour, employing clear rain water only.

VERBENAS FROM SEED (*Idem*).—Seed sown now in a hotbed and the plants grown on will attain sufficient strength for planting out at the end of May; they will flower from July until checked by frost. They, however, are not so good as plants raised from cuttings.

RAISING EPACRISES AND ERICAS FROM SEED (*R. D.*).—Drain pots or pans half their depth with crocks, placing the largest at the bottom, then place about an inch of rough sandy peat on the crocks, filling the pots to within a quarter of an inch of the rim with sifted peat to which a sixth of silver sand has been added, pressing it down firmly and evenly, and watering through a fine rose until the soil is made thoroughly moist. When the water has drained through the soil scatter the seed over the surface, and just sprinkle over it silver sand. Cover each pot with a pane of glass, placing in the greenhouse, and if shaded until the plants appear the necessity for watering will be lessened. The glass should be removed when the seedlings appear, and the pots must then be placed near the glass and be slightly shaded from bright sun. When the seedlings can well be handled pot them off singly, shading them for a few days until established, afterwards growing them in a light airy situation. The seedlings will flower about the third year.

TREE CARNATIONS FROM SEED (*Idem*).—Seed sown now in heat, and the plants potted off and grown on in cold frames through the summer, will flower during the following winter. A white flowering bedding plant raised from seed is Saponaria calabrica alba. It is a hardy annual that should be sown where it is to remain.

POTATOES FOR SUCCESSION (*A New Subscriber*).—The sorts you name we should arrange in the order following: First Earlies—Early Racehorse, *Veitch's Improved Ashleaf, Myatt's Prolific, Rivers' Royal Ashleaf, and *Early Shaw. Second Earlies—Alpha, *Extra Early Vermont, Early Giant King, Early Rose, and *Snowflake. Midseason—King of Potatoes, Brownell's Beauty; and Late—Model, *Magnum Bonum, *Red Regent, and Late Rose. Those marked with an asterisk are the most useful for ordinary requirements. The earlies should be planted from the middle to the close of March, the second earlies early in April, and the late sorts from the middle to the end of that month. There is no difference between a Flake and a kidney Potato, except that the latter is more flat.

PROTECTING APRICOTS (*Idem*).—The blossoming should be showing colour before the covering is employed; and if it is of an opaque description it should be removed daily if the temperature rises above 35°. Herring and other description of netting may remain on permanently until the trees have sufficient foliage to protect the young fruit. No time can be named for applying the protection, it being determined by the weather and the condition of the blossom.

SPRING FLOWERS (*M. J. B.*).—You may plant Anemones and Ranunculuses immediately the weather is favourable, but it is too late to plant dried bulbs of the other plants you mention. If you have bulbs established in the borders you may lift them carefully and plant them in the flower beds, not injuring the roots during removal.

PRIMROSE SCOTT WILSON (*Primrose*).—There is but one plant of this beautiful variety in existence, and we are informed by Mr. Wilson that he has placed it in the hands of a skilful cultivator, who will no doubt exercise due diligence in propagation, and will distribute plants as soon as he can.

PLANTING OUT CHRYSANTHEMUMS (*One Wishing to Succeed*).—Rooted suckers or young plants may be turned out of the pots in April and planted in good soil in a sheltered yet sunny situation, and may be lifted in late summer, cutting around each plant about ten days previously, and transferring them to pots with the balls entire, placing the plants behind a north wall for a few days, sprinkling them overhead two or three times a day, and watering liberally at the roots, then removing them to an open sheltered spot, and housing them before frost. They are best grown in pots, but we have seen these plants quite as bare of leaves at the base as those lifted, which is the only drawback to the plan. Suckers are as good as cuttings for any purpose, pots not excepted.

PROPAGATING BLUE LOBELIA (*Idem*).—Insert healthy cuttings now in pans filled with light turfy loam with a little leaf soil and a free admixture of sand, covering the surface with a quarter of an inch of pure sand. Place the pans in a Cucumber pit, and keep the soil constantly moist, and the cuttings will soon emit roots, and will form good plants by bedding-out time. The old plants will probably afford a second or third batch of cuttings, which may be inserted until the early part of April with every prospect of their being available for this season's bedding.

FRUIT TREES IN ORCHARD AND GARDEN (*John Hope*).—The fruit trees and quickset fences belong to the freehold estate and not to the tenant, even though he planted them. You have no occasion to pay him for them, and he cannot compel you to do so.

GRAFTING CHRYSANTHEMUMS (*Chrysanthemum Grower*).—The best grafted plants that we have seen were exhibited last year at Walton-on-Thames, and Mr. Masters, the Secretary of that Show, has given the following details of the operation :—"If plants are wanted with stems 2½ feet high growth should be encouraged until the plants are 3 feet in height, then pinch out the tops; leave about six eyes at the top to form the head, removing the others. When the top shoots have grown about 6 inches cut them off 2 or 3 inches from the stem; then take cuttings (scions), cutting the ends in the form of wedges, and insert them in the severed shoots of the prepared plant, securing them with wool or bass. Keep the plants in a cool house, and sprinkle and shade them until the union is effected, when they may be removed to the open air. Grafting may be done as soon as the plants are ready, which ought to be by the middle of May, so that the grafts can be stopped two or three times and thus form a fine head. It is important that the plants are in a healthy free-growing state when they are grafted, and that the work be done quickly yet carefully. Care should be taken to graft varieties that flower as nearly as possible at the same time. Every shoot may be grafted with a different variety if desirable."

INJURED LIME TREE (*An Old Subscriber*).—Cut off the splintered branch nearly close to the trunk of the tree, taking care to make a tolerably deep cut with the saw on the under side of the branch to prevent it when falling tearing the bark of the tree; then pare the bark smoothly with a knife, and paint the cut thoroughly with lead paint. You can have paint of any colour you choose: as a matter of convenience we use lead colour, which is not conspicuous and preserves the wood from decay. The wound would probably heal sooner if covered with a very thick plaster formed of soil and cow dung in equal parts, and in which is mixed, if convenient, a little bone meal, the whole being covered with a piece of sacking.

FIXING A THERMOMETER (*Idem*).—It should be suspended 4 feet from the ground, the bulb being half an inch lower than the opposite end. You will find useful notes on thermometers on page 68 of the present volume.

HEATING GREENHOUSE (*R. W. C.*).—Place the pipes under the stage. They must slightly rise to the most distant point from the boiler, where it is desirable to fix an air-pipe, and then be returned with a corresponding decline to the boiler. You may enclose a convenient portion of them with brick or woodwork, and cover the enclosed space with glass for forming a box for striking cuttings. The pipes in the box should be covered with stones, and the stones with cocoa-nut fibre refuse for plunging the pots in.

ATTENDING FIRES (*A Constant Reader*).—A gardener with three men under him, and who looks round the houses every evening to see that all is right, does all that can be reasonably expected of him. If he chooses he can take his turn at the fires and also take a share of the Sunday work, but such duties are usually performed by under gardeners.

GUANO WATER (*G. South*).—You may mix from a quarter to half an ounce of guano in each gallon of water for applying to your Peach trees in pots when they need a stimulant. Blood manure is a less powerful fertiliser, and may be used in rather larger quantity per gallon.

COMPOST FOR VINE BORDER (*T. A. K.*).—Fresh horse-droppings mixed with the loam will not cause fungus, and sea sand if the soil is heavy will be beneficial.

TANK HEATING (*An Irish Amateur*).—The flow and return pipes must simply be conducted through the tank—or one pipe may be sufficient—having the other outside the tank. The tank you propose would not be sufficient to heat the house for tropical plants. You will require at the least two rows of 4-inch pipes in addition to those in the tank. Four pipes would not be too many if the house is lofty.

CROPPING OLD POULTRY RUNS (*J. H. C.*).—Dig the ground deeply as soon as it is sufficiently dry to work freely, and at the proper time you may sow and plant such vegetable crops as you require. Possibly the soil may be too rich for Potatoes, but it will be suitable for such crops as Beans, Peas, Onions, Cauliflowers, Cabbages, and indeed for green crops generally.

HEATING A CUCUMBER HOUSE (*An Amateur*).—Four lengths of 4-inch piping will answer very well for so small a house if you have two for bottom heat and not three as you propose (if we understand your plan rightly). You may readily manage this by taking the fourth row of piping almost close to the front wall, and shutting it out of the hotbed by a 4½-inch wall of brickwork, the opening between which and the front wall would leave the pipe open to afford heat to the house at precisely the best position for it. The pipes for affording bottom heat should be about a foot from the soil. Assuming that the flow pipe is attached to the top and the return pipe to the bottom of the boiler, the water according to your arrangement of the pipes will circulate freely. You will need a valve in the flow pipe where it enters the greenhouse, so as to admit heat to that structure as required.

NAMES OF PLANTS (*C. C. F.*).—2, Phlebodium loriceum; 3, Pteris argyrea; 4, Didymochlæna lunulata; 5, Pteris longifolia; 7, Pteris cretata; 8, Cyrtomium falcatum. The others have no spores. We should like to see No. 1 with spores, or if it does not produce them oblige by sending us another specimen. (*N. J. C.*).—1, Asplenium viviparum; 2, Pteris serrulata cristata; 3, Selaginella denticulata; 5, Begonia Weltoniensis; 6, Begonia Ingrami; 4, Sedum corsicum. The others we cannot name, as they are so much crushed.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

IRRIGATION OF GRASS LAND.

(*Continued from page 144.*)

WE now name a few general rules to be observed in watering the meadows. A good flow of water, commonly called thick watering, is always to be preferred to thin watering, and particularly during summer time, for a slow run of water in the summer months, especially upon a cold heavy soil, is sometimes injurious instead of beneficial. It is also a fact that night watering is more beneficial than watering by day, and that water laid on in cloudy weather will effect more good than in bright sunny weather. As a rule, although river water is not so forcing as spring water, yet the land by which it is irrigated will be enriched by the alluvial matter contained in the water at flood time, and will on being filtered by the grasses leave a deposit of mud on the land of considerable thickness, and this by repetition will be the means of permanently improving the meadows, particularly those of a gravelly or peaty nature. It is much to be deplored that in many cases where irrigation is neglected that the alluvium in our rivers should be allowed to run into the sea, when it would so much enrich the land in the valleys through which the rivers pass.

In case of seeding land for irrigation we should notice those kinds of grasses which prevail in all our best meadows, and sow accordingly. These grasses are found principally to consist of Timothy Grass (Phleum pratense), Sweet-scented Vernal Grass Anthoxanthum odoratum), Meadow Fescue Grass (Festuca pratensis), Perennial Rye Grass (Lolium perenne), and Fiorin Grass (Agrostis stolonifera). These, with some others of less importance are seen in all our best irrigated meadows. We have heard of Italian Rye Grass being recommended to form part of the mixture for seeding, but we do not approve it, because it grows very hollow at bottom and overpowers some of the finer sorts of grasses. When we have done all that is possible by irrigation it is important to know what may be considered as the average produce of the water meadows in various districts, especially those in the valleys between the chalk hills. In illustrating this we will take an ordinary meadow of twenty acres. The spring feed being fed in April, will keep about four hundred ewes with their lambs about twenty-four or twenty-six days, during which time these couples will fold and manure about eight or ten acres of arable land; and this meadow will afterwards yield in two cuttings of grass about forty or fifty tons of hay. It is, however, a well-known fact that some of the best meadows will do much more than our illustration exhibits, for not only would more sheep be kept for the time and more land folded, but in the two cuttings of grass sixty tons of hay may be reasonably expected from twenty acres of land.

We must now refer to the second heading of our subject—namely, the making and management of catch meadows. This is an extremely interesting subject to all those who are connected with agricultural pursuits, and on account of their easy and cheap formation their extension must ever be means of pleasure as well as profit by reason of the transformation of the barren hillsides into verdant and productive pasturage. Many instances can be brought forward where the industry and capital expended upon spots little better than barren rocky hills, particularly in the western and south-western districts of England, have assumed through being converted into catch meadows a green and pleasing aspect, at the same time yielding to the proprietor a good investment for money expended, especially when it has been done with foresight and judgment. In making our statement as to the manner of laying out catch meadows, it will no doubt occur to the minds of both proprietors and managers of home farms how the same system carried out in the case of many parks and home pastures

would be particularly advantageous, both in appearance and in profitable production. In many cases we see in various parts of the kingdom park lands of a hilly and undulating surface, and in such cases it is common to meet with patches of shallow brows, not only unproductive but unpleasant to look upon, which may often be irrigated upon the catch-meadow system, for it is well known that upon the stone brash formation or greensand, and mixed soils generally, that springs of more or less value arise at various altitudes on the high grounds, which may be turned to account for irrigation instead of forming rivulets, whereby the water is carried to the lowlands without benefit to the higher pastures. This is especially the case in some districts where the tops of the hills consist of cultivated lands, that the acts of tillage will continually furnish loose soil, which in the western and south-western districts is being carried away by these rivulets; it is therefore encouraging to know that these rivulets may be diverted from their usual course and directed under proper management for the improvement of the hillsides and pastures at lower levels. The system consists not only in spreading the water by judiciously arranged trenches to feed the hillside pastures, but to catch and spread again time after time until the volume of water is exhausted; and even then when the water has irrigated a large area for a stated time it is passed on to a lower area and there treated as before, and at flood time a considerable amount of earthy matter will be distributed by the water and form a soil upon the barren rocks or gravels heretofore worthless. In order that catch meadows may yield the full benefit required of them the laying-out is the important point, for we generally find the hillsides already formed by Nature to our hands, and the "spirit level" in the hands of practical men soon traces out the varied slopes and marks the onward course for the "gutterer or waterman," who should be used to the art of levelling, it being a nice point to mark out the carriers upon irregular ground so that the water may flow in regular and even streams over the sides of the gutters. The formation of the main carriers is of the utmost consequence, because in crossing the little valleys they may pass below the hill-side springs, so that each may be "tapped" and drained into them, and thus to alternately catch and spread the water as it escapes from the hillside subsoil. This is not only the best but the cheapest process whereby these springs, many of them being warm or rather of a higher temperature than rivulet water, have been proved to be valuable in proportion to their higher temperature.

We will now give an instance of a well-laid-out catch meadow. The main water carriages are formed 8 feet wide and 6 inches deep on the lower side, the upper side being very shallow, and ranging crossways to the slope of the hill, and at a distance of 2 chains apart with a fall of 2 inches upon a chain of 22 yards; this is rather a rapid fall for general floating, but will always be subject to certain necessary variations. Between these carriers a smaller one is cut, 18 inches wide and 5 inches deep, at an equal distance from the upper and lower carriers. These gutters again collect the water into a sheet, so that it may be evenly spread over the whole surface. If it were not for this the water would collect in small streams, more particularly where the land had never been previously ploughed or levelled. By circuitous water carriers running across the hillsides the ingenuity of the waterman is displayed by affording an opportunity for the water to convey any quantity of accumulated loose soil in the little valleys to the adjacent poor and barren hillsides which have been robbed for ages of this deposit by the continued washings of the rainy seasons. The detail of this system is so minute that it requires the constant attention of the waterman to see that the water does not break out of the bounds assigned for it by the carriers and catch trenches. There are, of course, carriers or rivulets to take the water to the brooks in the lowlands where the meadows are not in course of watering. These hillside catch meadows are often fenced off by hedges into areas of 6, 8, or 10 acres as may be required, the water being carried under the hedges and roadways by culvert tiles. It is also a point to be considered in these exposed hill-sides which direction the hedges should be maintained; running from north to south is probably best, because the cattle require shelter from the prevailing winds from west to south-west in the autumn, and from the east in the spring season.

WORK ON THE HOME FARM.

Horse Labour has been so much delayed by the frost, and since the thaw set in by heavy rains, that great arrears of tillage work on the arable land will have to be provided for, and it must be a favourable and fine time in the future if serious delay does not occur to the seeding and tillage for Lent corn. The rolling of pasture and park land to be laid up for hay may now be done, as the land is now sufficiently soft and supple to give way to the roller; it may in consequence be made sufficiently smooth and level for the mowing machine or scythe to pass over and cut the grass close to the ground without waste. The clover and grass seeds upon the arable land will also soon be fit for rolling, as it is so important, particularly upon heavy land on the chalk formation, where there are usually a considerable number of large flints commonly called rags. These are often found so large that they cannot be rolled in so as to be entirely out of the way of the mowing machine; it then becomes a question which is the best way to deal with the largest stones, which must be either to pick them up or to break them with a stone-breaking hammer. We prefer the latter plan, because it may be done in the winter time, and when broken into pieces about the size of a hen's egg they will roll in easily. This will save the carting at all events, besides which we believe that upon the soil named the stones are required, not only to make the land work more freely but to retain the moisture in a dry season. The first work upon the land should be to get in the beans at the earliest opportunity; the drilling of peas will follow next in succession. Barley will follow next, as it is certainly of more importance if a malting sample is required that the barley should be sown before the oats at the very first time the land is dry enough to work freely.

Hand Labour will now consist of completing the hedge cutting and ditching, in order that the men may be at liberty when the first dry weather in March occurs to attend to draining work if any should be required, or the repairs of any drains which may have become stopped, as this will be easily discovered in March, because the first dry weather will show the wet stains upon the land, and enable any repairs to the draining to be done at the least expense. Grubbing, and the levelling of banks and hedges, may now be done; the same with any woodland. It often happens, and we know of such cases at present, where small coppices surrounded by arable land are being grubbed. The timber in the woodlands is seldom, particularly where the trees are nearly of one age, found to pay more than one, or one and a half per cent., on their value in the annual growth. In such cases the woodland should be converted into arable, because it not only prevents further injury to the adjoining fields but it enables them to be squared and formed anew in order to save time in ploughing, &c. Such lands will of course require a dressing of chalk or lime after it has been cultivated for one or two years. The best crop to be taken from newly broken ground we have found to be potatoes; they are not only more likely to escape the disease, but when the roots and weeds are burnt the ashes form a good dressing, and insure a good yield of tubers upon any dry soil. There will in the mixed soils often be some wet places in the newly-grubbed land; this, however, should be drained with pipes before being planted with potatoes or any other crop. We have sometimes seen mangold, carrots, turnips, &c., drilled upon newly broken land, but it is a great mistake, for we have never seen it answer, simply because the subsoil has been completely exhausted by the rootlets of the timber and underwood so long in possession of the soil. The rearing of calves will now be going on upon home farms in general, and this is none too early to save them for stock, but they will require especial attention in the pens whilst they are young. In order to have them healthy they must lie clean and dry and in a pure atmosphere. This matter seldom obtains sufficient attention; cases often occur, where the pens are not properly kept dry and sweet, that a kind of blood-poisoning occurs, showing itself by the hair coming off in patches almost like mange, with small pustules or ulcers on the skin. We therefore recommend careful feeding with the best substitutes for milk, such as a mixture of oats, maize, beans, and linseed cake, all in meal, mixed with scalding water and allowed to cool for use down to the temperature of milk from the cow; but the best feeding that can be devised will not succeed unless the pens are carefully attended to. The emanations from calves, both solid and liquid, are extremely offensive, and the best plan we have found to prevent any ill effects is to have the bottoms of the pens covered with earth about a foot deep, and litter daily with short dry straw as cleanliness requires, and allow the dung to accumulate until inconvenient in depth, taking care to sprinkle fine earth over the pens every other day.

LATE ENTRIES AT POULTRY SHOWS.

Our readers would be astonished if they could see the mass of correspondence and controversy which have been laid before us during the last two months concerning entries, and non-entries, and mistakes in entries at poultry shows. In the majority of these cases the whole difficulty has arisen from the receipt of entries after the days on which they were advertised to close. It has become a common and recognised event for the secretaries of shows to receive entries during at least a week after the proper closing day. Evidence of the fact may often be seen in the number of entries lettered thus: 26A, 26B, 26C, in the catalogue. We must plead guilty to having frequently sent them late ourselves, generally after urgent appeals from someone connected with a show. A novice in exhibiting is not unnaturally very indignant at such a practice, and complains loudly that an injustice is done him by it, inasmuch as he has entered birds perhaps a month before the time of the show, while under altered circumstances a fortnight later he would rather have entered quite different ones. He has trusted to the common wording of schedules—"after which date" (that of closing) "no entries will be received under any circumstances whatever"—and has been deceived, for other exhibitors have had their entries taken at the last moment, when it is much more easy to decide which birds it

is advisable to send. The ground of such a complaint seems abstractedly unassailable. From a practical point of view, however, something may be said on the other side.

Unfortunately it is seldom easy to make both ends meet in the final financial settlement of a poultry show; the expenses are much the same if the entries are two hundred or five hundred, consequently there is the very strongest temptation to invite entries up to the last moment, and to take any that are sent late. It is almost impossible for anyone but the sender and the receiver to know when they were sent, and the trouble of registering them falls alone upon the secretary, so he feels at liberty to take them as long as he likes. There is also in many places a great backwardness on the part of breeders to show their birds. This is specially the case in provincial towns where shows are seldom held. There are passive fanciers who have never exhibited before, or do not know the value of their stock, or fear their pets will be hurt. These are the very people that we want to enlist into the ranks of active fanciers. When it is found on the closing day that such people have sent no entries, members of a committee naturally apply to them and call their attention to the fact that a show is to be held. Not long ago at the Jersey Show we were informed that so dilatory are exhibitors there that half of the entries had never been sent at all, but that the Secretaries went round and collected them, and that had the entries really closed on the proper day half the exhibits would never have been seen. Again at Wolverhampton, where very prudently the Committee inserted a saving clause in their schedule, reserving to themselves the right to receive late entries, we were told, if we are not mistaken, that only one-third of the entries were sent in proper time. It is clear, then, that there is much to be said on both sides.

The remedy we should suggest for avoiding unfairness and disputes is this:—Firstly, that the closing day should be as late as possible. The fact that all these late entries are received is proof that an active person may prepare the catalogue for the press in a very short time; of course, there is the further question to be considered of the accommodation of the birds, but we should think ten days would generally suffice for arranging this. Secondly, we should have no objection to a plan, now and then adopted, of entries being received at an extra charge for a few days after their proper close. If an exhibitor must have so much time to make up his mind he must pay for it. There seems to us nothing unfair in this if it is announced beforehand.

One thing is above all others to be deprecated—that is, the sending round of circulars after the entries have properly closed, "Very few entries in —— class; you must win. Wire some at once." We actually on one occasion received a printed postcard to this effect! A space was left for the variety, and which was filled in by one of the committee with the breeds we are known to keep. Probably the same was done to all likely exhibitors, quite irrespectively of any real deficiency of entries in the particular classes.

There is certainly great convenience in entries not closing long before a show. All fanciers know how in autumn young birds suddenly "come on," and how old ones stand still in the moult, and how tiresome it is when the show time arrives to be obliged either to leave pens empty or to send just the bird we would keep at home. Or we may wish to try a pen at a show; if it is victorious we naturally wish to show it again, if hopelessly beaten we prefer to consign it to private life. Such perplexities constantly occur when entries close a month beforehand, but if they be kept open till ten days or a fortnight before the show an exhibitor has but himself to thank for it if he cannot pick out his best birds and show them to advantage. This would be our remedy, and if it were well known that entries sent after this late date would really be refused we fancy exhibitors would take more care than they now do to be in time.—C.

POULTRY EXPERIENCES.

WITH the view to the solution of the problem of keeping and rearing poultry, and of obtaining eggs at a moderate cost, as "COL. B." has suggested, I send you my experience for the last year.

Dr.	£	s.	d.	*Cr.*	£	s.	d.
To Stock, 36 head	4	0	0	By 71 Ducks and Fowls, used at 11*d.* per lb...	9	1	4
„ To cost, 3*s.* 6*d.* per week	9	2	0	„ 1282 eggs at 1*d.*	5	6	10
„ Balance	4	6	11	„ Stock, 27 head	3	0	9
	17	8	11		17	8	11

I do not take into account the value of the dung and feathers, as it cannot be given with exactness. On the other side, I do not charge for the boy's work, which does not exceed 10*s.* per annum. With regard to "dead stock," I do not find I have any occasion to charge the poultry account with anything of that sort. The rearing of Ducks and preparing them for the table in three months s a principal object. I have great facilities for this. The court is arge, and there is a pond in it. The meal used is chiefly barley and maize meal, which by Ransome's mill is prepared as I used it. I believe the use of this machine tends very greatly to a profitable issue in keeping of any stock. I have considered that a bushel in every four is gained by the use of it, and you get the meal of the grain you grind in it. I have no doubt as to the profitableness of keeping poultry, and have often wondered at the hesitating way you have met the questions of inquirers on the subject.—A. B. C., *An Old Subscriber.*

[Had you seen the questions as well as the answers you would probably have been less surprised at the replies given.—EDS.]

COCHINS VERSUS LANGSHANS.

I THINK the account given in your Journal last week should not be left to the public unnoticed. Mr. Gabb, of Bewdley, is quite in error in supposing the Cochin to be narrow across the shoulders, all recognised authorities maintaining that Cochins should be very broad across the shoulders. I have been a breeder of poultry for many years, and have been very successful in the show pen with Cochins broad across the shoulders and saddle. As to the distinction between Cochins and the so-called Langshans, it is a puzzle to any judge to tell the difference. I know a large breeder who at an autumn show exhibited a pair of Black Cochins and took second prize, and from the same parents exhibited a pair in Langshan class, and took third prize, under the same judge.—W. P.

RABBIT FATTENING.

SEVERAL varieties of Rabbits are only kept for fancy and show purposes, and these are not required to be fatted. They are only required to be kept in condition, "show condition" as it is generally called. But common hutch Rabbits and very large breeds will pay well for fattening if it is carried on in an economical but not stingy way. In the best of breeds some badly marked or ill-shaped specimens will occasionally make their appearance, and these may be fattened. Monopoly in breeds, as in everything else, must tend to keep up the value, and therefore it often pays better to kill off surplus stock than to sell it at such a price as can be obtained for inferior specimens. The process of fattening is not an intricate one, but it is one that requires care.

Patagonian and Belgian Hares are certainly the most profitable breeds for fattening if we except a cross between the two, which possesses an almost miraculous capability of putting on flesh. The young of either or both of these varieties will, if properly cared for, be as large at three months as ordinary Rabbits are at double the age or more. They may be taken for fattening now or may be left for a couple of months more. It is not easy to say which is the most profitable age to select. In towns where green stuff and roots are scarce, or have to be bought, the younger age, or about three months, will certainly pay the best. Six weeks' fattening will then bring them into first-class condition, and they will weigh at least half as much again as an ordinary full-grown hutch Rabbit, and more than double the ordinary warren Browns. Common hutch Rabbits, or cast-off Lops, or foreign varieties, it is best to leave till six months old if much flesh is intended to be put on.

There are two systems of fattening. Sometimes the Rabbits are allowed to run together in considerable numbers and are fatted in this state. Much more frequently, however, they are put in small hutches quite alone and then supplied with flesh-producing food in abundance. Both plans have an advantage. If put in hutches they can be fattened very rapidly and much food will be saved. The flesh, however, has a strong taste that is considered objectionable, although some persons have not hesitated to say that the flavour is more imaginary than real. However this may be, it is of course much more natural to let them have a little exercise. If the Rabbits are kept loose as suggested they will not fatten so soon, and about a fortnight longer is also required to get up the required weight; hence it is much more expensive to adopt the loose principle. Another difficulty experienced is the fact that Rabbits will sometimes take to fighting, and will often hurt each other.

It is necessary as soon as the Rabbits have been put into fattening hutches to commence the proper diet. This consists of almost any kind of grain and roots, much of the fattening being dependant upon the mode of administration. Meals are very good; barleymeal is both fattening and cheap. It is an expensive article in the first place, but a little goes a very long way. Oatmeal is another excellent flesh-producer; it does not seem to be so heating as the meal produced from barley, and consequently it may be better in some respects. It is much more expensive than barleymeal, and is not more fattening, although it may be a little more conducive to health. Whole oats and whole barley are also very useful at this time, and are probably as fattening as the meals. But they cannot be given in so many ways, and a Rabbit's appetite can only be kept up by means of frequent changes of diet. Oil cake is very fattening indeed, but if you can induce the Rabbits to eat it you will be lucky. Do not adopt the starving principle, which does not pay; it is better to deceive the Rabbits by mixing it in small quantities with the other foods and gradually

increasing the proportion. Roots are necessary to keep the Rabbit well, and they are fattening. Beetroot, artichokes, carrots, and turnips may be all tried with success. Stalks of garden vegetables are always good. Green stuff must be given to Rabbits which are putting on flesh, especially if they are not having any exercise, or very little. If it is neglected the system is sure to get out of order, and the means adopted to put them right will retard the process of fattening very considerably. If too little green stuff is given constipation and skin diseases will result, and if too much is given looseness will be caused, and a good deal of weight will be lost. In this case a good deal of dry food should be given; the more green food is given the drier any meal should be given. The meals may be given dry mixed with bran and pollards, or may be mixed with water or milk; in this case they may be mixed very dry indeed, as the Rabbits prefer to have it crumbly. It may also be mixed with a few squeezed-out tea leaves or with boiled potatoes or parsnips. The best way is to boil potatoes skins and all, and then mash them up with the meal; a little pollard may be added to make it last longer, and it will be good for the Rabbits.

Indoor are more suitable for fattening purposes than outdoor hutches, and are less trouble; they should be well cleaned daily, and the Rabbits occasionally allowed to have a short run. Three times a day the animals should be supplied with as much food as they can eat, but not enough to have any waste, in which case the Rabbit will soon tire of its food. Green stuff and roots should be given in the morning and evening, and the large feed of corn or meal at midday.—GETA.

THE CRYSTAL PALACE BIRD SHOW.

ONE of the finest competitive Exhibitions of Cage Birds ever held was opened at the Crystal Palace, Sydenham, on Saturday, February 22nd, and will be continued until this day (Thursday). The large number of 1581 entries were effected, being about 250 more than the previous year. The exhibits comprised all the well-known breeds of the Canary tribes, Mules of various crosses, and British and foreign birds of different kinds, the two last sections of the Show this year forming more prominent features than usual. The Canaries notwithstanding were in full force, and beautiful likewise in their varied show points, as regards the classes of Clear Yellows and Buffs, Even-marked and Variegated, and we may safely say that the Crested birds never were seen in better feather and crests. The Mules were in appearance somewhat behind former shows, especially as regards condition and cleanliness, which we look upon as a most important point in the struggle to attain the highest honours; notwithstanding there were here and there many really excellent birds. In Class 46 we could not help noticing a couple of Clear Goldfinch and Canary Mules, real beauties, which were awarded special prizes, they being out of the hunt completely so far as competing with the other birds in the class, which stated the birds were to be of "any other variety of Canary Mules." To our thinking there should be a provision made for such birds in the "Goldfinch and Canary Mule" classes as in former years. One other matter we think should be altered—that of offering a third prize to such birds as the Marked Norwich, Lizard, London Fancy, and Belgian birds, four of our very choicest breeds of Canaries. Mule birds, too, should be considered, especially the Even-marked birds. Surely any of the above-mentioned breeds are better deserving of a third prize than such classes as Marked or Variegated Cinnamon birds.

The Judges must have had an arduous task before them when they commenced their duties in the tent on Friday morning, for a more unpropitious day could not have been, covered as the glass roof of the transept was with a thick mantle of snow. However, with the temporary brightening-up of the weather and the aid of long moveable tables the birds could be placed immediately beneath openings in the top of the canvas tent, and the various degrees of excellence ascertained. The utmost difficulty was experienced towards the close of the day, which began to darken quickly, in deciding upon the prize birds in a new and most important class in the Exhibition—viz., "Clear or Ticked Norwich, irrespective of colour (cayenne fed)," confined to *bonâ fide* amateurs that have never won a cup, medal, or any other special prize at an all-England show, except in amateur classes. However, the sixty entries in the class were at length decided upon by the birds being taken out of the dark tent and judged in a light sufficient to satisfy the adjudicators; and we may safely say that better or more perfect specimens than the prize birds for general excellence it would be difficult to find amongst the amateur breeders of England.

Our further remarks this week are confined more particularly to the British and foreign classes. The British comprised forty-eight Bullfinches, seventy Goldfinches, twenty-seven. Linnets, twenty-nine Redpoles or Siskins, with well-filled classes of Skylarks, Woodlarks, Blackbirds, Song Thrushes, Starlings, and other varieties. Amongst the vast array were many beautiful birds, notably the prize Bullfinches, Goldfinches, Woodlark, and Blackbird, the latter two in particular having gained several previous prizes for their owners. The prize Blackbird, "the champion" as it was so styled, belonged to Messrs. Sleep & Bird, the winners of the silver medal presented by Mackley Brothers to the winner of most points in the classes of British birds. Class 72, for any variety of hybrid pied albino or rare specimen of British bird, contained a couple of dozen birds of interest, such for instance as a white Starling, white and pied Blackbirds, a black Bullfinch, pied Linnets, Skylarks, and a pied Bullfinch, besides other rare specimens of the Goldfinch and Greenfinch, and the Bullfinch and Goldfinch crosses. The class for the best collection of British or migratory birds consisted of groups of different varieties in one cage, the birds living in apparent harmony with each other. Besides the above there were Blackcaps, Nightingales, a China Lark (very rare), Tree Pipits, a Redwing, a Fieldfare, Titlark, and Redstart.

The foreign class was well filled with numerous gorgeous-plumed birds consisting of Red-headed Cardinals, Virginian Nightingales, Waxbills, Java Sparrows, Diamond Sparrows, Weaver Birds, Barbary or Turtle Doves, Love Birds, Australian Grass Parakeets, Parrots (Grey, Green, and Amazon), Ring-necked or Indian Parakeets, King Parrots, Cockatoos of the Leadbeater or Rose-breasted kinds, and also those of Lemon or Orange-crested, besides an Any other variety class. There was also a fine collection not for competition, consisting of Grass Parakeets from the Antipodes, which have lived during the recent cold weather in the open air; a shining and a masked Parakeet from Fiji; a remarkable pair of Parrot Finches; a Hawk-headed Parrot, besides in other collections a Lapwing Plover, a Piping Crow, an Indian Honeysucker, a long-billed Australian Cockatoo, Blue Nightingales, Indigo Blue birds, Manakins of various kinds, Weaver birds in variety, blue Robins, a Peruvian Nightingale, a Paradise Whidah, a Laughing Jackass, Bengalee Panaches, Java Sparrows without end, Zebra Finches, and a collection too numerous to particularise, as were never seen at any previous Crystal Palace Bird Show.

The entire arrangements of the Exhibition were all that could be desired.

CANARIES.—NORWICH.—*Clear Yellow.*—1 and 3, Mackley Bros. 2, G. E. Russell. *vhc*, G. Hayton, Mackley Bros., Wright & Smethurst. *Clear Buff.*—1, G. E. Russell. 2 and 3, Mackley Bros. *vhc*, Mackley Bros. (2), J. Yallop. *Evenly-marked Yellow.*—1, J. Waite. 2, Mackley Bros. *vhc*, J. Robinson, Mackley Bros. (3). *Evenly-marked Buff.*—1 and 2, Mackley Bros. *vhc*, J. Robinson, G. E. Russell, Mackley Bros. *Ticked, Unevenly-marked, and Variegated Yellow.*—1, Mackley Bros. 2, G. E. Russell. *vhc*, G. E. Russell, G. Moore, Mackley Bros. (2), J. Yallop (2). *Ticked, Unevenly-marked, and Variegated Buff.*—1 and 2, Mackley Bros. *vhc*, G. E. Russell, J. Yallop. *Clear Yellow, not Cayenne-pepper Fed.*—1 and 4, Mackley Bros. 2, G. E. Russell. 3, G. Andrews. *vhc*, T. Mason, Mackley Bros., Mrs. M. E. Newmarsh. *Clear Yellow, not Cayenne-pepper Fed.*—1, 2, and 3, Mackley Bros. *vhc*, E. Fenner, C. Carver, G. Andrews. *Evenly-marked Yellow, not Cayenne-pepper Fed.*—1, J. Cleminson. 2, Wright & Smethurst. 3, W. Clark & Co. 4, Mackley Bros. *vhc*, J. Waite, J. Athersuch, Mackley Bros. *Evenly-marked Buff, not Cayenne-pepper Fed.*—1 and 2, Mackley Bros. 3, J. O. Whitmore. *vhc*, J. Yallop. *Unevenly-marked Yellow, not Cayenne-pepper Fed.*—1 and 3, Mackley Bros. 2, C. H. Legge. 4, J. Athersuch. *Unevenly-marked Buff, not Cayenne-pepper Fed.*—1 and 2, Mackley Bros. 3, S. Tomes. *vhc*, J. Amos. *Evenly-marked Crested Yellow.*—1 and 2, T. W. Pearl. 3, J. Waite. *vhc*, J. Yallop. *Evenly-marked Crested Buff.*—1, J. Hopkins. 2 and *vhc*, Mackley Bros. 3, J. Waite. *Unevenly-marked and Variegated Crested Yellow.*—1 and 2, Mackley Bros. 3, E. H. Kerwin. *Unevenly-marked and Variegated Crested Buff.*—1, G. E. Russell. 2, G. Hayton. 3, Mackley Bros. *vhc*, G. E. Russell, T. W. Pearl. *Clean Body, with Clear, Grey, or Dark Crest, irrespective of colour.*—1 and 3, Mackley Bros. 2, G. E. Russell. *vhc*, Mackley Bros., W. & A. Halse. BELGIAN.—*Clear and Ticked Yellow.*—1, J. Peet. 2, J. Rutter. *vhc*, E. Hawkins, R. W. Ledger, J. Percy. *Clear and Ticked Buff.*—1 and *vhc*, J. Rutter. 2, W. L. Rae. *Variegated, irrespective of colour.*—1 and 2, J. Rutter. LONDON FANCY.—*Jonque.*—1, T. Irons. 2, J. Waller. *Mealy.*—1, T. Irons. 2, H. Kinderman. *vhc*, Clark & Co., F. H. Townend, J. Waller. LIZARDS.—*Golden-spangled.*—1, W. & A. Halse. 2, J. Cleminson. *vhc*, T. M. Reid, S. Bunting. *Silver-spangled.*—1, T. M. Reid. 2, S. Bunting. *vhc*, S. Bunting, W. O. Hughes-Hughes. *Gold-spangled with Broken Caps.*—1, J. Cleminson. 2, W. Clark & Co. *Silver-spangled with Broken Caps.*—1, S. Bunting. 2, W. O. Hughes-Hughes. YORKSHIRE.—*Clear Yellow.*—1, J. Cleminson. 2 and 3, J. Thackrey. *vhc*, L. Belk. *Clear Buff.*—1, R. J. Troake. 2, L. Belk. *Variegated Yellow.*—1, J. Wilkinson. 2, L. Belk. *vhc*, J. H. Thackrey. *Variegated Buff.*—1, J. Wilkinson. 2, J. H. Thackrey. *vhc*, L. Belk, J. Wilkinson. CINNAMON.—*Yellow, high colour.*—1, W. J. Doyle. 2, J. Yallop *vhc*, J. Robinson, G. Moore. *Buff, high colour.*—1, Mackley Bros. 2, J. Yallop. *vhc*, J. Robinson, G. Hayton, J. Hopkins (2). *Yellow, not high colour.*—1, G. Fairall. 2, E. Barker. 3, C. Wren. *vhc*, Mrs. Mowatt, E. Fenner. *Buff, not high colour.*—1, W. Barwell. 2, J. Bexson. 3, J. Drake. *vhc*, E. Fenner. *Marked or Variegated Yellow.*—1 and 2, L. Belk. 3, Mackley Bros. *Marked or Variegated Buff.*—1, J. H. Thackrey. 2, L. Belk. 3, J. Bexson. ANY OTHER VARIETY.—1, Mackley Bros. 2, J. Waller. 3, J. Bexson. *vhc*, J. Bexson, C. Varetti, Mackley Bros. GOLDFINCH MULES.—*Evenly-marked Yellow.*—1, J. Waite. 2, J. Hopkins. *vhc*, Curtis & Watson. *Evenly-marked Buff.*—1 and 2, J. Brown. *vhc*, Curtis & Watson. *Variegated or Unevenly-marked Yellow.*—1, Curtis & Watson. 2, Mackley Bros. *vhc*, Stevens & Tenniswood. *Variegated or Unevenly-marked Buff.*—1, J. Yallop. 2, J. Robinson. *Dark Yellow.*—1, J. Robinson. 2, J. Hopkins. *vhc*, G. Moore, P. Rawnsley. *Dark Mealy.*—1, J. Robinson. 2, J. Hopkins. *vhc*, Sleep & Bird, — Rawnsley. LINNET MULE.—1 and 2, Stevens & Tenniswood. *Dark.*—1, J. Robinson. 2 and *vhc*, Stevens and Tenniswood. ANY OTHER VARIETY OF MULE.—1, W. Wadey. 2, Stevens & Tenniswood. *vhc*, — Judd, W. W. Cole. SIX IN ONE CAGE.—*Clear Norwich, irrespective of colour.*—1 and *vhc*, Mackley Bros. 2, J. Yallop. *Variegated or Crested Norwich, irrespective of colour.*—1 and 2, Mackley Bros. *vhc*, J. Yallop (2). *Goldfinch Mules.*—1, Sleep & Bird. 2, A. Steel. LANCASHIRE COPPY.—*Clear or Ticked Yellow.*—1 and 2, Wright & Smethurst. 3 and *vhc*, J. Yallop. *Clear or Ticked Buff.*—1 and 2, Wright & Smethurst. 3, J. Radmore. *vhc*, J. Yallop. LANCASHIRE PLAINHEAD.—*Clear or Yellow.*—1, Mackley Bros. 2 and *vhc*, Wright & Smethurst. 3, J. Wilkinson. *Clear or Ticked Buff.*—1 and *vhc*, Wright & Smethurst. 2, J. Yallop. 3, Mackley Bros. SCOTCH FANCY.—1, 2, and *vhc*, Mrs. T. Goldring. NORWICH.—*Clear or Ticked, irrespective of colour, Cayenne Fed.*—1, Sadler & Barber. 2, J. T. Galey. 3, T. W. Pearl. *vhc*, G. Pople, N. W. Pearl, T. Galey (5), W. Radmore, Sadler and Barber (3), T. Beasley, W. Pratt (3).

BRITISH BIRDS.—BULLFINCH.—1 and 2, Sleep & Bird. 3, W. Swaysland. *vhc*, Sleep & Bird, E. Arnold (2), W. Swaysland, Curtis & Watson, R. J. Troake, S. Cook. GOLDFINCH.—1, C. H. Legge. 2, G. Bailey. 3, Stevens and Tenniswood. *vhc*, Sleep & Bird, A. A. Mauchan, — Judd, G. Hayton (2), W. L. Rae, Master A. Varetti, H. Pearson. CHAFFINCH.—1, A. A. Mauchan. 2 and 3, Sleep & Bird. *vhc*, — Judd, S. Bunting. LINNET.—1 and 2, Stevens and

Tenniswood. 3, Sleep & Bird. *vhc*, A. Steel (2), G. Paterson (2), H. Pearson. REDPOLE OR SISKIN.—1 and 2, Sleep & Bird. 3, J. Drake. *vhc*, T. W. Pearl (2), J. Yallop, — Judd, G. Paterson, H. Lees. SKYLARK.—1, S. Cook. 2, — Judd. 3, Sleep & Bird. *vhc*, Sleep & Bird, H. Gifford, S. Cook. WOODLARK.—1, W. Swaysland. *vhc*, F. H. Townend. ROBIN.—1, Sleep & Bird. 2, J. Ball. *vhc*, Sleep & Bird, W. Swaysland, S. Bunting. BLACKBIRD.—1, Sleep & Bird. 2, W. Holliday. 3, S. Arthur. *vhc*, Sleep & Bird, M. Edwards. SONG THRUSH.—1, Mrs. J. Fogg. 2 and 3, W. Smith. *vhc*, Sleep & Bird, W. Pestel. STARLING.—1, Sleep & Bird. 2, E. Arnold. *vhc*, W. Swaysland (2), J. C. Marsh, C. King, J. Drake (2). MAGPIE.—1, J. Drake. *vhc*, — Judd. JAY.—1, Sleep & Bird. *vhc*, Master D. Christie. JACKDAW.—1, Sleep & Bird. 2, — Judd. ANY OTHER VARIETY.—1 and 4, J. Ball. 2, H. Lee. 3, Mrs. Gray. ANY VARIETY OF HYBRID, PIED, ALBINO, OR RARE SPECIMEN.—1, T. Alwin. 2, E. Hawkins. *vhc*, T. Fletcher, T. Alwin, J. Wilkinson, W. Cole. BEST COLLECTION OF BRITISH OR MIGRATORY BIRDS.—*Six Distinct varieties in One Cage.*—1, J. Drake. 2 and *vhc*, Sleep & Bird. 3, E. Hawkins. 4, J. Ball.

BIRDS OF PASSAGE AND MIGRATORY BIRDS.—BLACKCAP.—1, C. Varetti. NIGHTINGALE.—1, J. C. Marsh. *vhc*, S. Cook. ANY OTHER VARIETY.—1, C. Varetti. 2, W. Swaysland. 3, J. Ball. *vhc*, H. Lee.

FOREIGN BIRDS.—CARDINAL.—*Red-headed.*—1, H. Lee. 2, E. Hawkins. NIGHTINGALE.—*Virginian.*—1 and 2, E. Hawkins. *vhc*, T. Fletcher, M. Edwards. WAXBILLS.—1, 2, and *vhc*, Mrs. M. E. Newmarch. SPARROWS.—*Java.*—1, Mrs. Skurray. 2 and *vhc*, Mrs. M. C. Newmarch. *Sparrows.*—1, R. Anderson. 2, Mrs. M. E. Newmarch. WEAVER BIRDS.—1, F. Townend. 2, J. Groom (2). BARBARY OR TURTLE DOVES.—1, E. Hawkins. 2 and *vhc*, Miss M. Bullen. LOVE BIRDS.—1, — Judd. 2 and *vhc*, E. Hawkins. PARAKEETS.—*Australian Grass.*—1 and 2, E. Sumner. *vhc*, E. Sumner, E. Hawkins. *Australian.*—1, J. A. Barrs. 2, J. Groom. *Ring-necked or Indian.*—1, Miss A. Brooke. 2, J. Allen. ANY OTHER VARIETY OF SMALL PARROTS OR PARAKEETS.—1, J. C. Marsh. 2, J. Groom. *vhc*, G. Coldham. PARROTS.—*King.*—1, J. A. Barrs. 2, J. Drake. 3, Mrs. W. Wood. *Green, or any other variety of large, except Grey.*—1, J. Drake. 2, H. H. Wood. 3, T. Packham. *Grey.*—1, J. Groom. 2, E. H. Sweeting. *vhc*, Miss S. Benbow. COCKATOO.—*Leadbeater or Rose-breasted.*—1, F. J. Guy. 2, W. Young. *vhc*, J. Groom. *Lemon or Orange-crested.*—1 and 2, J. Groom. ANY OTHER VARIETY.—1, W. C. Wild. 2, T. Fletcher. Equal 3, T. Fletcher, T. H. B. Bower. 4, J. Drake. *vhc*, E. Sumner, — Judd, J. C. Marsh, E. Hawkins (4), W. C. Wild, Miss Hodge, Mrs. Antrobus, Mrs. T. C. Pitts.

EXTRA PRIZES FOR GREATEST NUMBER OF POINTS.—Medal, J. T. Galey. Medal, Sleep & Bird; Cup, J. Groom.

JUDGES.—*Canaries:* Messrs. G. J. Barnesby, J. Doel, and J Calvert. *British Birds:* Mr. J. F. Hills. *Foreign Birds:* Major H. Ashton.

VARIETIES.

WE would warn our readers against an individual who has paid visits to some celebrated poultry yards in central Wales. He is an apparently respectable person, and selects some birds for purchase and orders them to be sent to his address. Payment, however, does not follow; in one case when it was demanded the birds were sent back after being detained for weeks.

—— WE have received a report of the late exhibition season as regards Leghorns from the Leghorn Club. The breed, we think, first attracted attention from the notice of it and a pretty illustration of the Brown variety in Wright's "Poultry Book." It has steadily increased in popularity ever since, and thanks to the exertions of the Leghorn Club is now recognised as a variety at almost all shows of any importance. Most elaborate analyses are given in the report of the number of shows at which classes have been given to Leghorns during the three past years, and of the number of entries in them; from these we gather that there is a steady increase in the number of fanciers of the breed.

—— "A. H. D." wishes to know if the leaves of the Portugal laurel are poisonous to sheep.

—— WE have received Messrs. Sutton & Son's "Farmer's Year Book," which besides giving illustrations of their approved roots contains excellent papers on the "Vermin of the Farm," and the "Chemistry of Farm Crops," also a calendar of farm operations. Accompanying the "Year Book" is Mr. Martin Hope Sutton's treatise on the "Laying Down of Permanent Pastures," wherein the chief grasses and fodder plants are illustrated, their properties noticed, and their adaptabilities to various soils well described.

—— AN agriculturist in the vicinity of Croydon imforms us that the thermometer during the night of the 23rd inst. registered as low as 19°, or as it is popularly enumerated 13° of frost.

—— THE following estimate of Silver-Grey Dorkings is by an American poultry keeper—"We procured a trio of Dorkings of the variety called Silver-Grey Dorkings. They were of good size, and quite contented, compared with some of the smaller breeds, but they had more life and ambition to get a living than the Light Brahma. We have now had them for six or eight years, and taking them as family fowls for the farmer who wants eggs for his household and chickens for his table, we think them ahead of all the Asiatic races and many of the smaller breeds when eggs and flesh are both taken into consideration. Instead of their being tender fowls to raise and inclined to lay but a few eggs, they are quite the opposite. We have rarely lost a chick the last three years; not one with the gapes or any other disease that I know of, and but three or four in a hundred by accident, an immunity which we think proves them entitled to be called hardy in regard to the raising of the chicks."

MODERN BEE MANAGEMENT.—No. 5.

APIARIAN APPLIANCES.

ON looking over the catalogues of dealers in apiarian supplies, or in examining a show collection, the beginner is apt to conclude that his chances of success in bee-keeping are small unless he be the happy possessor of a long purse. To such I would say that, although I have been very successful both in marketing large harvests of honey and in taking prizes at exhibitions, I happen to get along without the great bulk of the machinery referred to. I would further lay it down as a rule never to buy a new article till the need of it is distinctly felt. In addition to the prime requirements of hives, supers, and comb foundation, referred to in former papers, the following are the only appliances I find necessary in the apiary—an extractor, honey knife, smoker, feeder, veil, queen cage, and a few joiner's tools. I am not sure but I ought to leave out the veil, as it is very seldom I use it, and believe it quite possible to manage without it. The smelter illustrated in a former number is a handy contrivance for fixing comb foundation, but I can succeed almost as well with a cup and spoon. The smoker is only a convenient and safer way of using a roll of cotton rags. The honey knife is only a little more convenient than any other long thin-bladed knife. The feeder may be quite a homely contrivance. Thus our list grows small by degrees.

In future papers on management proper I may often have to refer, however, to the above appliances, and it may save trouble to give a short description of the more important ones here.

Smoker.—No method of quieting bees during manipulation has yet been discovered equal to the use of smoke. I do not refer to the stupefying smoke from puff ball or tobacco. These along with chloroform are now abandoned by the best bee-keepers. It is not necessary to stupefy bees before they can be handled; they have only to be slightly alarmed, and nothing does this so readily as a few puffs of pungent smoke. Once alarmed by this means, bees instinctively rush towards their stores, and in a few minutes gorge themselves with honey, after which they may be driven or

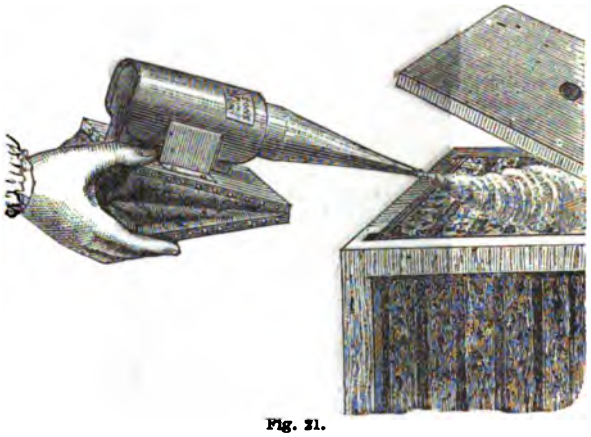


Fig. 21.

tumbled about without danger to the owner. Rapping on the hive has the same effect if persisted in, though there is more need of caution to begin with. The material most approved for its smoke is old corduroy or moleskin; its smoke is very pungent, it burns to the last without being apt to rise into a flame, and its effect on even the most savage hybrids is all-subduing. But as rags or such like materials are apt to throw fire amongst the bees, or to set on fire the clothes of the operator or the quilts or other coverings of the hives, various kinds of smokers have been designed to prevent this and to economise the smoke. The best of these have a bellows attachment, and a nozzle from which the smoke can be directed towards any desired point.

The above engraving represents Neighbour's safety smoker in use, when manipulating with a bar-and-frame hive. It consists of a long tube, which takes apart in the middle and has bellows underneath. The air is communicated to the tube through an upward valve.

To prevent the fire going out when not in use, set the smoker down on end.

The tin guard over the tube is intended to prevent the hand being burnt in case the smoker is incautiously laid hold of.

Extractor.—By placing a piece of unsealed honeycomb on a wire frame near the bottom of a common tin pail, and whirling the pail rapidly round the head, it will be found that the honey in the under side of the comb has been thrown out into the pail. Such an operation in a toy pail in the hands of an unconscious boy was really the origin of the useful honey extractor. The father of the boy, Von Hruschka, noticed the effect and made the first smielatore, as it is called in Italy. Instead of the pail there is a square funnel-shaped tin vessel with wire frame inside. This is slung on a horizontal pole pivoted at one end. By swinging the other end of the pole the vessel containing the comb is made to revolve in a circle perpendicularly. The cleverly designed "Little Wonder" extractor of Mr. C. N. Abbott, Fairlawn, works on the same principle, except that its pole is perpendicular and

the can revolves in an horizontal direction. Those who have much work to do prefer a geared extractor like that made by Mr. Steele, of Fowlis, near Dundee, and others (fig. 22). In it two combs are extracted at once, and with a minimum of labour and time. Space forbids to say more than indicate a few of the ways in which the extractor is helpful in the apiary. It enables us to relieve combs of their honey at any time without seriously damaging them. Thus we may make room for more brood in the early part of the honey season, or for stimulative feeding in the fall, or we may extract all the honey in the autumn, and supply its place with sugar syrup, quite as wholesome for the bees and much cheaper besides. Or we may, instead of supering our hives, allow them to store all their honey in spare combs given to them and extract these several times during the season. In this way at least double the weight of honey may be obtained. In one of the American bee journals for this month (February), there is a credible account of a hive in California, which, by the aid of the extractor, yielded 1000 lbs. last season.

A word of caution is necessary here. Never extract honey before it is at least nearly all sealed over. Unsealed honey is apt to sour or ferment; and as a rule never extract from combs containing unsealed brood. It is quite possible to throw out the honey without injuring the brood, but frequently the reverse is the case. It is far better merely to uncap the honey in such combs and leave the bees to extract it. This they will at once do, and

Fig. 22.

store it where it will be handier for the bee-keeper.—WILLIAM RAITT, *Beecroft, Blairgowrie, N.B.*

OUR LETTER BOX.

GROUND OATS (*C. H.*).—The ground oats for poultry are common throughout Sussex, while in other counties they are unknown. The whole of the oat is ground so fine as to be capable of being made into a paste like a custard. We buy of Messrs. Marsh of Kingston.

POULTRY-KEEPING (*E. G.*).—You must have plenty of room if you purpose trying the experiments, for they are such. Force must be used to make a bird sit if she is not broody. She may be shut down on the eggs, but if there be any space between them and her there will be no good result. We advise you to begin by following Nature. Get some good-sized broody hens that will cover eleven Ducks' eggs each, and set them. Do not be disappointed if they do not hatch at the end of three weeks, for Ducks' eggs require four weeks. Put the ducklings with the hens in a pigstye or in an outhouse for five or six days, then let them out with the hen. She will rear them more certainly than a Duck; but as fowls are necessary we advise you to rear a few chickens as well.

MATCHING TUMBLERS (*Tom Tower*).—If your brother will state what variety of Tumblers he wants information about, "WILTSHIRE RECTOR" will readily give him the information needed.

STABLE WASTE (*Investigator*).—We have no data as to the number of pounds of urine voided by a horse in twenty-four hours. In point of fact, although it is desirable to obtain this information and thus be enabled to assess the money value, it would still depend upon the method adopted for saving the urine; for if retained as liquid manure it would be depreciating daily as long as it was kept, by the ammonia constantly escaping. Besides, in a liquid state if used as manure, it is not always found to repay the trouble; and if reserved in a tank with a drain from the stable to take it there, it is found that the volatile ammonia passes back into the stable, in addition to that which flies off in the stable before it reaches the drain. This has always been a serious evil, and damaging to the health of the horses; and the only way that we have ever found by which the urine could be retained in the most valuable form, is by the absorption of earth floors, which renders the air pure, and affords also far better lying for the animals than stones, bricks, &c. Our experience of this plan, carried out for twenty-five years, is that horses will do well in that way. A full description of this system was given in this Journal, January 17th, 1878, page 56.

HONEY CAKES (*One Interested*).—Mix a quart of strained honey with half a pound of powdered white sugar, half a pound of fresh butter, and the juice of two oranges or lemons. Warm these ingredients slightly, just enough to soften the butter, and then stir the mixture very hard, adding a grated nutmeg. Mix in gradually 2 lbs. or less of sifted flour, make it into a dough just stiff enough to roll out easily, and beat it well all over with a rolling-pin; then roll it out into a large sheet half an inch thick, cut it into round cakes with the top of a tumbler dipped frequently in flour, lay them in shallow tin pans slightly buttered, and bake them.

BEES AMONG RASPBERRIES (*G. F.*).—Your hive can be safely removed as you propose—in fact, the bees will be better away. It will not make the slightest difference as to their frequenting the Raspberries, and they will be better in the open.

BEES DISEASED (*Novice*).—Your bees evidently died of dysentery. What "B. & W." wrote on this subject the other day clearly indicates the probable cause of your misfortune. We suspect that many stocks all over the country—autumn-fed like yours—will have succumbed to this terrible malady. The honey you fed them with had nothing to do with it. We would not advise you to use the hives again till they have been cleaned out and sweetened by exposure to the air; but you may feed your bees in the open air with the food in the combs that are but little soiled. You may try the rest, but at some risk.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. Feb.	9 A.M. Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	IN THE DAY. Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 19	29.420	37.4	35.8	S.W.	38.3	45.0	33.0	73.8	31.8	0.200
Th. 20	29.121	35.3	33.9	S.W.	38.2	41.3	32.8	61.3	30.6	0.220
Fri. 21	29.095	33.8	32.9	N.N.E.	37.7	40.0	29.8	71.5	28.3	—
Sat. 22	29.340	31.3	30.6	N.	36.8	38.8	28.3	53.8	27.2	0.012
Sun. 23	29.542	32.0	30.2	W.	36.2	35.6	28.6	49.8	26.4	0.020
Mo. 24	29.786	29.2	28.0	N.E.	35.9	36.2	25.2	55.6	26.0	—
Tu. 25	30.019	33.7	31.5	N.E.	35.5	38.7	28.2	67.8	24.9	0.018
Means	29.475	33.2	31.8		36.9	39.4	29.4	61.9	27.9	0.470

REMARKS.

19th.—Fine morning, windy, but sunshiny; little overcast in afternoon; rain in evening.

20th.—Fine sunny morning; sharp sudden squall with snow and sleet at 3 12 P.M. lasting for an hour; fine bright sunset, starlight evening. Venus bright.

21st.—Heavy fall of snow in early morning, covering the ground to the depth of 3 inches at 9 A.M.; it nearly all melted in the bright sunshine during the morning. Overcast in afternoon and evening.

22nd.—Fine day with sunshine, little cloudy at intervals; snow in evening.

23rd.—Fair morning, slight fall of snow between noon and 3 P.M.; overcast in evening.

24th.—Cold bright day with sunshine; fine sunset; fine cold evening.

25th.—Cold but very bright clear morning. Between 1.5 P.M. and 3 P.M. sleet fell followed by snow crystals; fine and bright until 5 P.M.; at 5.30 P.M. shower of sleet. High and very cold wind.

A very cold week, with frequent snow.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 26.

WE have no alterations to make from last week.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	2	0	to	5	0	Melons	each	0	0	to	0	0
Apricots	dozen	0	0		0	0	Nectarines	dozen	0	0		0	0
Cherries	℔ lb	0	0		0	0	Oranges	℔ 100	4	0		10	0
Chestnuts	bushel	12	0		16	0	Peaches	dozen	0	0		0	0
Currants	½ sieve	0	0		0	0	Pears, kitchen	dozen	0	0		8	0
Black	½ sieve	0	0		0	0	dessert	dozen	3	0		8	0
Figs	dozen	0	0		0	0	Pine Apples	℔ lb	2	0		4	0
Filberts	℔ lb.	0	9		1	0	Plums	½ sieve	0	0		0	0
Cobs	℔ lb	0	9		1	0	Raspberries	℔ lb.	0	0		0	0
Gooseberries	quart	0	0		0	0	Strawberries	℔ lb.	0	0		0	0
Grapes, hothouse	℔ lb	3	0		8	0	Walnuts	bushel	0	0		0	0
Lemons	℔ 100	4	0		8	0	ditto	℔ 100	0	0		0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	2	0	to	4	0	Mushrooms	pottle	1	6	to	2	6
Asparagus	bundle	6	0		12	0	Mustard & Cress	punnet	0	2		0	0
Beans, Kidney	℔ 100	1	0		1	6	Onions	bushel	2	6		4	0
Beet, Red	dozen	1	0		2	0	pickling	quart	0	4		0	0
Broccoli	bundle	0	9		1	6	Parsley	doz. bunches	2	0		0	0
Brussels Sprouts	½ sieve	2	0		4	0	Parsnips	dozen	0	0		0	0
Cabbage	dozen	1	0		2	0	Peas	quart	0	0		0	0
Carrots	bunch	0	4		0	8	Potatoes	bushel	3	6		4	9
Capsicums	℔ 100	1	6		2	0	Kidney	bushel	4	0		5	0
Cauliflowers	dozen	3	0		6	0	Radishes	doz. bunches	0	0		0	0
Celery	bundle	1	6		2	0	Rhubarb	bundle	0	0		0	6
Coleworts	doz. bunches	2	0		4	0	Salsafy	bundle	0	9		1	0
Cucumbers	each	0	9		1	0	Scorzonera	bundle	1	0		0	0
Endive	dozen	1	0		2	0	Seakale	basket	2	6		3	6
Fennel	bunch	0	3		0	0	Shallots	℔ lb	0	3		0	0
Garlic	℔ lb.	0	6		0	0	Spinach	bushel	2	6		4	0
Herbs	bunch	0	2		0	0	Turnips	bunch	0	2		0	0
Leeks	bunch	0	2		0	4	Veg. Marrows	each	0	0		0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 6—12, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
6	TH	Royal Society at 8.30 P.M.	48.6	32.2	40.4	6 37	5 46	2 24	5 31	13	11 30	65
7	F	Royal Institution at 8 P.M.	49.1	32.4	40.7	6 35	5 48	4 50	5 49	14	11 16	66
8	S	Royal Botanic Society at 3.45 P.M.	49.1	31.5	40.3	6 32	5 50	6 17	6 6	O	11 1	67
9	SUN	2 SUNDAY IN LENT.	49.2	31.1	40.1	6 30	5 51	7 46	6 22	16	10 45	68
10	M	Royal Geographical Society at 8.30 P.M.	49.6	31.6	40.6	6 28	5 53	9 17	6 39	17	10 30	69
11	TU	Royal Horticultural Society—Fruit and Floral Com-	49.1	32.2	40.7	6 26	5 55	10 48	6 59	18	10 14	70
12	W	Society of Arts at 8 P.M. [mittees at 11 A.M.	50.4	32.2	41.3	6 23	5 56	morn.	7 24	19	9 48	71

From observations taken near London during forty-three years, the average day temperature of the week is 49.3°; and its night temperature 32.2°.

SOIL DIFFICULTIES.

SUCCESS or failure in the culture of all garden produce depends upon the nature of the soil in no inconsiderable degree. A man may be skilful, energetic, painstaking, and thoroughly in earnest, but if the soil be not good, and means are wanting to make it so, he will spend his strength in vain; for how can he possibly produce succulent vegetables, brilliant flower masses, or well-grown highly flavoured fruit in an inert poverty-stricken soil? Such lamentable cases are by no means uncommon; and while urging all owners of gardens, in common fairness, to afford their gardeners a reasonable amount of manure and the requisite labour power for its due application to the soil, I feel bound to inquire if there is not a considerable waste of fertilising matter in many country houses which, if turned to account, would contribute materially to the enrichment of the soil—I mean the house and stable sewage that is so often let run to waste? and yet it should be regarded as a perennial source of a most valuable manure supply.

Some years ago a young man had taken his first situation as head gardener, and found to his dismay a poor soil and a very restricted supply of manure. He had been trained in a good school and taught to regard sewage with due importance, and so made prompt inquiry about it. Finding, after some little trouble, a huge cesspool full to the brim, but buried beneath the soil, the liquid could only be obtained by digging down to it and drawing it up with a rope and pail; waterpots, strong arms, and a right good will did the rest. Excellent crops and a successful "first year" were the result, and the foundation of a flourishing career was laid.

It is by no means intended to infer that sewage or other kind of manure is an universal remedy for bad soils: the term "bad soil" is far too comprehensive for that, but it must be granted that manure is undoubtedly an important factor in the improvement. This fact is so obvious that I need not dwell upon it. What is apparently not generally understood is the equally important fact that most kinds of soil may be brought up to a given standard of excellence in a given time, provided the requisite means are forthcoming. The propensity to regard a bad soil as a sort of chronic evil, one of the ills of life to be borne as philosophically as may be, is much too common. Why is this so? Is it that the nature of soils is not understood? Let me recommend this matter to the attention, not only of individuals, but of those gardeners' mutual improvement societies now so common, and suggest as useful subjects for thoughtful earnest discussion the following questions:—What is the origin of loam, peat, clay, chalk, alluvial, marshy, sandy and gravelly soils, and how may such soils be improved? Chemistry in its relation to soils and plants:—What are phosphates, sulphates, alkalies, salts, acids, and what connection have they with horticulture?

Plain people, owners of small gardens—amateurs, in fact—are apt to take the alarm at scientific terms. Let them not, however, turn away in despair—I had almost said disgust—for I have some plain speaking in store for them, and here it is. Is the soil of your garden heavy, wet, cold, and are the crops much subject to injury from spring and autumn frosts? Drain it. If you are told that this has already been done, and done in vain, pay no heed, for, depend upon it, it was not well done. Make new drains forthwith of 2-inch pipes 30 feet apart and 4 feet deep, laying the pipes carefully and conducting downwards to a 4-inch main drain, or making the outlet of each drain in a ditch, or any place where the soil is not likely to fall over and choke it. The drains made, attack the soil, break it up and mix sufficient coal ashes with it to prevent its ever settling down into a hard wet mass again. A third part of ashes to two-thirds of soil will not be too much. You will very likely not have enough to do this at once, therefore use what you have, and repeat the dressing again and again till the soil, however wet it may be, parts readily from the tool. It may require three or four years to accomplish this if you have only the ashes of an ordinary household at your disposal. But pray remember that once well done it will give you no further trouble; for not only do ashes lighten a heavy soil, but they also render material assistance to its drainage, and it becomes so porous that the passage of rain water is secured: hence it is comparatively dry and warm, it is open to the action of the air, and is therefore sweetened and made more fertile. It must not, however, be forgotten that the benefit to be derived from such a fertilising agency is insufficient of itself and we must supplement it with heavy dressings of manure, letting sewage play its most important part among growing crops in summer, pouring it on with a lavish hand, and having no fear of an overdose in such an open soil.

In old gardens lime does much good in the soil. I have also found it highly beneficial in a new garden, and have lately applied it in what I regard as an improved way. A large quantity of weeds with a good deal of soil attached to the roots had been accumulating for a year. Upon this, early last autumn, a quantity of stable manure, coal ashes, and about 160 bushels of lime hot from the kiln were put, and the whole turned over together and left for a month; it was then turned again and well mixed. I then had about a hundred cartloads of this limed soil, and have been covering borders and whole squares of the kitchen garden with it. About a hundred fruit trees have also had some inches of it as a top-dressing for the roots, my object being to reinvigorate those trees which showed signs of suffering from poverty and thinness of soil, my mixture being more suitable for such a purpose than a mass of crude manure. I also anticipate much benefit from it to Cauliflowers, Broccoli, and all the Cabbage tribe, the crops of which have hitherto suffered seriously from ambury or club root.

Highly as lime must be regarded as a purifying fertilising agent, it is in my opinion of quite secondary importance in comparison with coal ashes, which for opening and otherwise improving a heavy soil are quite indispensable. I repeat this simple truism, not only for its great value, but also because its real importance is far from being recognised by practical men as it ought to be. It was only a

few weeks ago that the manager of a large estate told me all the land which he had had exposed roughly to the action of frost early in winter had crumbled and become beaten down into a close mass again. Why? Simply for want of that mechanical division which coal ashes or other hard gritty substances impart.—EDWARD LUCKHURST.

NOTES ON POINSETTIAS.

THE last batch of these plants will now be doing service; but their floral beauty will soon be over, and it may be that cultivators are looking forward with fresh resolutions to achieve greater success another year than during the past by growing larger bracts and keeping the leaves on the plants down to the pots—that is, where the plants have not this season reached the required standard of excellence. The gorgeous effect produced by a quantity of well-grown and highly coloured Poinsettias, and their usefulness for all kinds of decorations, render the plants worthy of special attention.

We have from time to time seen various systems of growing these plants recommended, and have this season fully satisfied ourselves which is the best to pursue in the future. Plants were placed in an ordinary greenhouse temperature towards the end of March, and allowed to grow under very cool treatment, with the idea that they should receive no check such as they sometimes receive when started early and subsequently removed from warmer into cooler quarters. The plants referred to advanced in growth but slowly, and in due time were placed in cold frames, every attention being given to them in watering, syringing, potting, &c. As soon as the external conditions allowed air was admitted all night, and the lights were taken off during the day. Towards the end of September they were removed to the greenhouse where frost could be excluded. The growths under this treatment were very short-jointed and the plants were dwarf, but the roots began to die after September and the leaves commenced turning yellow, an indication that more heat was necessary. To fully test the cool treatment in the various stages of growth, as we were not depending on this batch of plants, we deprived them of that little heat which was necessary for their proper development. We at last moved these plants out of sight, fully satisfied that cool treatment would not do in their latter stages of growth.

The next batch for experiment we placed in a temperature of from 65° to 70° in May, when they were shaken out and repotted. After taking to the new soil they were gradually hardened off and placed in cold frames. If care is exercised this can be done without the plants receiving any check or injury. These plants were grown under cool treatment during the summer, and towards the end of September they were placed where the temperature would not fall below 45°; they only lost part of their leaves, and supplied bracts useful for cutting purposes. The roots began to die in the temperature named, when half the batch was removed to warmer quarters, where root-action again commenced.

The plants forming our principal and last batch were rooted from the middle of June to the end of July. These plants were hardened off and grown in cold frames until September, after which they were removed to a house and placed close to the glass, where the temperature could be maintained at 55° to 60°, according to the external atmosphere, with a good circulation of air on all favourable occasions. A portion of these plants produced bracts towards the end of December, and the remainder are doing us service now. These were in 4 to 6-inch pots, potted in a compost of rich fibry loam, a little sand, and about a seventh of well-decomposed manure, and were liberally supplied with liquid manure when the pots were full of roots. The plants varied in height from 1 foot to 2 feet 6 inches, and the bracts measured 12 to 14 inches across.

If large bracts are required the plants should be propagated during May, and grown in cool quarters during the summer to keep them stout and dwarf. As soon as the growth is completed they should be moved to warmer quarters, say in a temperature of 60° to 65° at night, care being taken that the growth is completed before placing them in the temperature named, or else they will soon run up weakly and the bracts be small compared with those which have completed their growth. Under this treatment, with proper attention given to watering and feeding the plants, the foliage will be retained and heads produced measuring from 16 to 20 inches across.

We have found, the plants being grown in 6-inch pots, that large bracts of Poinsettias cannot be produced under the retarding process in the latter stages of development; neither should the plants receive cold water at their roots, especially during the last month they are in cold frames, or the roots will certainly be destroyed. The time when the plants require more heat in early autumn can at once be ascertained by examining the roots, which must be kept fresh and active, or the foliage soon presents a sickly appearance which no after treatment can remedy. The retarding process must be practised where the plants are required in February or later; but they should never be in a lower temperature than 55° until their bracts are produced, and if the heads are only 12 inches over the plants will be very useful for decorative purposes. When properly developed the bracts last much longer if placed in a temperature of 45°, care being taken that the plants are gradually hardened to that temperature, or the leaves will soon turn yellow and fall off.

The leaves are not of vital importance to the plants. After the bracts are thoroughly developed, especially if used with other plants for the decoration of conservatories, the pots and a portion of the stem can be hid amongst plants of a more bushy nature, and the heads standing well out above the other plants, make the arrangement very effective.

The double Poinsettia has not yet become very popular, yet it has properties very highly recommending it. The white variety we shall grow no more, we look upon it as useless.—W. BARDNEY, *Norris Green.*

NOTES ON PEARS—JUDGING FRUIT.

AFTER all, on comparing my list with "HEREFORDSHIRE INCUMBENT'S," there is no very great difference between our selections, as out of twenty-four varieties we each name fifteen the same. If I venture to discuss the merits of those in which we differ, I say to begin with, that Doyenné d'Eté, unless it is gathered very early and ripened in a cool place, is a very indifferent fruit. It is pretty to look at when ripened in sun, but soon becomes mealy and insipid. Citron des Carmes, which I prefer, should also be gathered before it ripens on the tree, which should be planted where it does not have too much sun. In my opinion Doyenné Gris, though it comes in when other Pears are beginning to be plentiful, is a better Pear than the Summer Doyenné. I am willing to give up Souvenir du Congrès as being perhaps too like Williams' Bon Chrêtien, though I think it decidedly a distinct fruit, and the tree is more likely than the old favourite to bear well in the north as a bush tree or espalier. I quite agree in the value of Brown Beurré, but it is too tender and uncertain for northern climates, and requires a wall and a favourable season. As I said before, I cannot see why Beurré Diel should ever have a place among twenty-four Pears, though in a larger collection it should be grown. Beurré Defais is unknown to me except by name; and having four years in succession had collections of Pears and Apples at York, Thirsk, Whitby, and Malton, where an average of from 1000 to 1500 dishes were shown, including, of course, duplicates, I do not remember ever having seen it among them. In the south under the name of Doyenné Defais I am told it is a good midseason Pear. Glou Morçeau is an undoubtedly good Pear, but does not get sufficient flavour in the north without a south wall. I cannot give up Gansel's Bergamot; it falls out of repute because it is a shy setter, and if grown on a wall becomes gritty. In Nottinghamshire it was very good on a west wall, and though the fruit was much larger on a south wall it was not so good. I find with me the best fruit grows in the coolest aspect. One tree of mine overblooms itself, and I think the flowers do not set for that reason, and it would be worth while to thin the blossoms and impregnate them from other flowers. There is a spurious Knight's Monarch grown in the north which is an inferior fruit, more like the Suffolk Thorn; but the true Knight's Monarch in a favourable season and aspect, especially on an espalier in front of a south wall, is an excellent Pear. Beurré Sterckmans, Joséphine de Malines, and Bergamotte Esperen are not to be sufficiently depended upon in the north; but if I cut out Souvenir du Congrès and Beurré de l'Assomption as early Pears not yet sufficiently tested I should substitute Madame Treyve and Joséphine de Malines.

Although I have no doubt, as "AMATEUR, *Cirencester,*" says, if twelve Pears only were named nearly all the best would be mentioned, yet I do not think it allows a sufficient scope. Let initials, such as W for wall, S for standard, E for espalier, and B for dwarf bush or pyramid, be put after the names, and as the names would be tabulated in order, those who only

wanted six or twelve could take the first on the list; and as most probably lists would be sent in from northern, southern, and midland districts, any differences or discrepancies might be pointed out by the returning officer.

While on the question of judging fruits, I agree in the main with Mr. Iggulden's remarks. I rather take exception to the high point he gives for Grapes in a collection of fruits. No doubt exceedingly well-finished and high-flavoured bunches of Canon Hall Muscat, of Golden Champion, or Muscat Hamburgh should have high marks, but when every garden or gardener of any pretensions grows Grapes why should they rank with Pines and Melons? Peaches and Nectarines are much more rarely exhibited as forced fruits really well grown and highly flavoured; nor do I think Apricots and Figs, unless more than usually good specimens, should stand as high as Peaches and Nectarines. Really fine dishes of Strawberries take a higher position than either Pears, Apples, or Cherries, and except Pears and Apples are orchard-house-grown or forced in pots they rarely are in season to compete with the other fruits except at later shows, as it ought to be a *sine quâ non* in all collections of fruits that all the different dishes are fit for the table.—C. P. PEACH.

CARNATIONS AND PICOTEES.—No. 1.

SEVERAL of my friends to whom I have forwarded plants at various periods of the year have asked me for a statement of my mode of growing the Carnation and Picotee. Not that it is any different from that of other growers, yet situated as I am in the high hilly districts of our northern home, there may be a slight difference in the *modus operandi;* and as I have found that a trifle omitted frequently militates against the well-being of the plants, I propose to write a small monthly article with a calendar of operations attached. As we are now well advanced in February I propose to write, say, three small articles for three successive weeks, which make up for lost time.

It is now thirty years since I first commenced growing these my favourite flowers, and I well recollect how elated I was when I returned home with my first lot o plants, some twenty pairs, which I purchased from an old grower well known to the Yorkshire and Lancashire florists. At the time I am speaking of the growers were not so liberal-minded as now. Their idea was only to sell the plants to a beginner, but not to tell him how to grow them. I well recollect asking a grower from whom I had bought plants how I should grow them to have them as fine as those grown by him. His reply was, that I was to grow them in exactly the same sort of soil that he had employed for his plants. This was in November, when he had them in their winter quarters. I examined the soil very carefully, it was a strong yellow loam. I at once exclaimed that we had some soil at our place exactly like it in appearance in an old camm (Yorkshire for hedge bank). "Now lad," he says, "that is just the stuff to grow them in, but on no account put any manure in the compost." I grew them as told; one solitary plant gave me a flower, the rest all died. The plant which produced the one flower yielded me a single plant—all I had to begin the year again with. I was, however, determined to persevere; and having made the acquaintance of a dear friend of mine since dead, Mr. William Holmes, an old grower who had come to reside near me, the result was that I was able to meet my kind adviser in the show tent the following year, and defeat him. Of course I had grown them differently from what he told me, and had used some manure to them. Dressing, too, at that time was unknown to me, and I may be tempted at some time to tell of my early endeavours in that line.

I do not see that we have made very great advances in the quality of the flowers of the Carnation, as according to my recollection we had as good flowers in my early days as now. We have still at times premier flowers from some of our oldest varieties—notably Admiral Curzon, S.B., Lord Milton, C.B., Sarah Payne, P. & P.B., Premier, P.F., Sportsman and John Bayley, S.F.S., and Lovely Ann, R.F., which has been the parent of nearly all our best rose flakes in that extensive class. In Picotees, however, the advance has been very marked, and of all the varieties which I grew twenty years ago I only grow one now—viz., Mrs. Dodwell, H. red, which I saw exhibited so good in 1877 that it only lost by one vote being chosen the premier bloom in the show. At the time I am speaking of, or a little before, one of our best sorts in the north was called Nulli Secundus, a flower I never recollect having seen with more than two tiers of petals, and generally shown with a hole down the centre sufficient to place a finger point in. It was, however, recognised by all florists as a step in advance, possessing as it did the colour on the edge of the petal instead of being as heretofore all striped or barred. Since then the improvement has been more rapid, and seldom has a year passed that has not furnished an addition and improvement to the Picotee. Until now we can find some flowers which do possess the property of dressing themselves, if the grower takes the trouble to ease the calyx and keep the flowers protected so that the wind does not disarrange the petals.

Directions for January.—With me during that month nothing could be done owing to the frost. My frames were covered with snow (Nature's blanket) from the last week in the old year until the end of the first week in February. This, however, being an exceptional year, I shall give the directions as if an ordinary winter had occurred. Give all the air possible by tilting the lights up at the back. My plan is to raise the frames off the ground with a brick placed under each corner, forming a floor composed of loose floorboards fixed on battens nailed to the front and back boards of the frame. This causes a constant circulation of air amongst the plants when the slides are tilted ever so little. Never apply water unless the soil is very dry, in which case apply it liberally, selecting a time to do so when the weather appears to be settled, so that the water may drain away freely, never watering on the foliage at this time of the year. Continue to obtain any varieties you are short of, planting them if in pairs in 3-inch pots; the plants being placed near the edge of the pots. A cool house is suitable for them until the roots reach the pot sides, when the plants can be gradually hardened off and placed in the stock frames. If the weather is mild it is wonderful how soon they harden off. The last lot of plants I placed in the frames in December; in twenty-four hours it commenced freezing, and from that time, as I have before said, the frost continued, yet now the plants are as fine as any I have.

Keep a strict watch for green fly; whenever it is seen syringe the centre of the plants, where the insects congregate, with a solution of Gishurst compound, 2 ozs. to the gallon, syringing in the morning when the day promises to be dry and fine. Another good way is to work the syringe in the compound until it forms a lather, when you can apply it to the plants with your hand. There is no occasion to wash the Gishurst off the plants, as no more insects will make their appearance until the plants have made fresh leaves beyond where the compound has been used.

As to which situation is best suited for the frames, that will depend entirely on the climate. With me a southern aspect is best, but then it is no uncommon occurrence for us to be a month at once and not see the sun. Generally, however, where the atmosphere is pure I should recommend an eastern or western aspect. In addition to the fly in mild winters two other pests are troublesome—viz., slugs and caterpillars, which, being night-feeding, require to be looked for after dark, making use of a lamp or lantern. Bear in mind always to examine the plants which have been eaten by them, as the slugs will frequently be found in the hole of the pot which has been attacked. If the compost is not prepared get it together as soon as possible. I use three barrows of turfy soil, one of decayed manure, that from an old hotbed is best, half a barrowload of burnt refuse, and the same quantity of leaf soil. Some sorts I make use of a poorer compost to grow them in—of this more anon.—GEORGE RUDD, *Undercliffe, Bradford.*

SOWING PEAS FOR SUCCESSION.

I HAVE been an amateur gardener for many years, and as yet have not been able to adopt any plan whereby my different crops of Peas can be so sown as to come to maturity without having two or three different varieties all ready at once. Every year there are some new and wondrous sorts introduced, and I must own to a frailty of sometimes discarding a well-known good sort for these new comers that I know nothing of beyond what the raisers advertise, and their estimates of varieties and mine I find are not always identical.

My plan has generally been in sowing the main crops that after one row is fairly up, say an inch or so, to sow the next, and so on, but there is so much difference as to the time the varieties come to maturity that I have two or three sowings ready for gathering at the same time. I want to avoid this, and if any of your correspondents can put me right I shall be greatly obliged. I have made a start this year with Laxton's William I.

and Dickson's First and Best for early use. I have also seed of Culverwell's Telegraph, Best of All, Dr. Maclean, Challenger, and Sharp's Invincible: this I consider a tolerably good selection for a small garden; but how am I to sow them so that I can have them to gather as I want them? I had with one exception the same sorts last year, and although they were sown at intervals of not less than three weeks, fully one-third of them were gathered for seed instead of the pot.

I make no apology for troubling you with this, because I know your columns are open to those who want advice as well as to those who are ready to give it.—SENEX.

SCENTLESS ROSES.

THE following extract from Mr. William Paul's shilling book on Roses gives the substance of my argument so completely, that I venture to ask you to give Mr. Paul's words the advantage of the extended publicity afforded by your columns. He is a master in the art. A sentence from him will command attention, while one outside the ring like myself may in vain implore a hearing.

The three points to which Mr. Paul directs the attention of Rose-growers are of vital importance. May I venture to hope that they may have the consideration of the National Rose Society? Of what possible public utility can it be to award first-class certificates or prizes to Roses of sickly constitution, which bear only one or two scentless blooms? Make it a rule that no Rose shall take a first place unless it has a vigorous constitution, a long flowering season, and rich odour. If a flower has not these in addition to other qualities it should be put aside among other eccentricities. "Our new Roses," says Mr. Paul, "are in most cases losing in sweetness, losing in constitution, losing in perpetuity of flowering. Few of them will compare favourably on these three points with the old favourites Baronne Prévost, Beauty of Waltham, and Duchess of Sutherland. The one idea just now is a large globular Rose; a 'show Rose,' no matter if it has no scent, does not grow well or flower freely. Many of our recent Hybrid Perpetual Roses are lamentably deficient in these three great qualities, and are in my judgment little more than summer Roses. The French raisers should hasten to learn the fact that the majority of their customers grow Roses for garden and house decoration rather than for exhibiting, and that such will not be satisfied with anything short of novelties which smell sweet, grow well, and bloom freely both in summer and autumn. . . . We want a Paul Neyron in form and size of every colour and shade of colour, white, red, and yellow—and blue if we can get it—that shall equal or excel all existing kinds in sweetness, exceed them in hardiness of constitution, and give forth a succession of flowers from June to November."

The above remarks have my full concurrence, and I suspect also that of many other lovers of Roses.—W. SYMONS.

EXPERIMENTS IN RIPENING PEARS.

I WAS very much interested in "WILTSHIRE RECTOR'S" remarks on the above subject, and am sure they will be useful to many readers—if not for the past crop, at any rate for the coming one. We have not a Pear soil here, though at Worthing only a mile distant, Pears do very well. On reading the article referred to it caused me to look at my prize list, and I found that in five years I had taken two first, two second, and one third prize at Brighton; and I thought a few remarks would not be out of place in your Journal, though referring to half a dozen varieties only.

The first Pear I will notice is Jargonelle. This, though a badly keeping Pear, with judicious gathering can be made to last till the end of September. Should I have a good crop, I commence gathering early in August with the small fruit, placing them in single layers on a little sweet hay in boxes, and keeping them in a dark room. I have had this variety fit to exhibit at the middle of September; but the next variety always comes finest with me—namely, Williams' Bon Chrêtien, which is a splendid Pear for this locality. I have seen more than thirty dishes of it staged in one class at Brighton. This, though a very sleepy Pear to manage, is with attention kept till the middle or end of October. It is an excellent Pear for exhibition if you can grow it right, but last autumn I was two days too soon with my best fruit, and when I wanted them they were just decaying at the eye. To have the fruits well coloured I wrap them in flannel or wadding a few days before they are required. Louise Bonne of Jersey is rather shy here, but what few we have are generally very fine; I have seen good fruit of them at Brighton, but cannot remember any taking prizes there. This Pear can be kept at least to the middle of November; one year I had them good at the end of that month. Next comes Marie Louise; this is a good cropper here, and last year, just by way of change, I exhibited a dish at the middle of September. I had them well coloured, but I suppose by gathering them so early they lost their flavour, as I found they were slightly bitter but not at all shrivelled. One year, I think in 1876, a dish of this came in first. I have no trouble to keep this Pear till Christmas. Brown Beurré is quite at home here: it comes very fine, and keeps well by the side of Marie Louise. Last on my list is Chaumontel—the largest of all, the handsomest, and the best keeper. I have kept it all through the month of February.

This is a very short list; but other Pears are grown in this neighbourhood. The Pear crop has been very uncertain here these last two years owing to the late spring frosts, but I hope after passing this winter we shall have a fine spring and summer; but at the time I am writing snow is on the ground, and the frost is very severe. My Pears are grown on walls. No particular date can be given when I gather, as I am sometimes astonished at the varying times Pears ripen here. I have noticed quite a fortnight difference in some seasons.

In gathering early Pears I always commence with a few small ones to experiment with, as you can tell in a very few days by what you have gathered and those left behind on the trees if they are fit for the fruit room. Our soil being very light I give the trees a good watering when the crop is swelling off, and mulch the roots with plenty of stable dung. Perhaps some others will give us a few particulars of their Pear crops, and their remarks thereon.—STEPHEN CASTLE, *Gardener to H. Apted, Esq., Broadwater, Worthing, Sussex.*

LINDSÆA.

THE cultivation of this beautiful genus has been no easy task for many Fern-lovers whose attempts have failed to keep it within the Fern house. It has often disappointed me and evaded every care. Other growers have been equally unfortunate. At length after many trials, believing that I have succeeded with two of our species, I beg to offer a few remarks on the genus which may afford hints to those who have not had the opportunity of seeing it at home.

L. trichomanoides and L. microphylla in the North Island may be found on gentle slopes in rather open woods that are not moist, certainly not wet; the soil a silt of that rather unpromising kind we know as cob resting on rock. In such a situation, within an area probably of two or three acres, I have seen many hundreds of plants. During some parts of the year the habitat must be very dry. L. trichomanoides there reached a maximum height of about 15 inches; L. linearis, that exceedingly beautiful species with bright shining stipes of rich plum colour, may be found on dry cobby spurs of very poor soil within the shelter of Manulla scrub (Leptospermum); in such positions I have found it quite 20 inches in length.

As to my own efforts at cultivation, I have renounced all coddling. L. trichomanoides is planted in the fernery on a well-drained site rather elevated. The soil is composed of alluvial deposit from the bed of a crull with clay banks. As this stream receives the drainage of a small black swamp the mixture is fairly good; a sufficiency of this placed on and amongst smallish fragments of sandstone, this is the resting-place for the tufts of Lindsæa. Water is given not oftener than three times within the space of a week. I am happy to say that, judging from the number of young fronds put forth, L. trichomanoides appears at last contented to remain.

L. linearis occupies a lower site in a mixture made up of broken sandstone, rough bits of turf, and stiff silty deposit from the crull bed. Water is but sparingly applied as with the other species. It should be stated that there is no artificial heat in this fernery.

This statement is not put forth as the best method of treating Lindsæa; it is but communicating the result of many trials, and expressing the probability that these shy beauties are becoming domesticated.—THOMAS H. POTTS, *Ohimitaki, New Zealand.*

VINES AND PEACHES IN THE SAME HOUSE WITHOUT HEAT.—I, and no doubt many others of your readers, have been very much interested in the perusal of the various articles which have appeared under the above heading during the

autumn and winter, but unfortunately the locality where the combined system has been successfully adopted has never been mentioned, and therefore we in the North Riding, for instance, can scarcely estimate how the same plan might be expected to succeed so far north as with us. Peaches we know will flourish, but as to Vines we feel somewhat doubtful. Perhaps Mr. Witherspoon, who is further north still, can give us some further useful information on the combined mode of fruit culture referred to.—YORKSHIRE.

[Letters on this subject have appeared from Scotland, Wales, the West Riding of Yorkshire, and other places.—EDS.]

THE CULTURE OF ZONAL PELARGONIUMS FOR AUTUMN AND WINTER FLOWERING.

FEW flowers are capable of furnishing such a diversity of colour as the Zonal and Nosegay sections of Pelargoniums, and in addition to their attraction during the summer months, under good management a fine display may be had through the dull months of the autumn and winter. When associated tastefully with other winter flowers Zonal Pelargoniums impart a brightness that is always acceptable. The following observations apply to the cultivation of the plants for producing a display during the period named.

I will begin with their propagation. Cuttings are inserted in spring, one being placed in a thumb pot in preference to inserting a number together in large pots or pans. The pots are drained and filled with a mixture of loam and leaf soil in equal proportions; and when inserting the cuttings, which are made from short-jointed ripe wood, a little sand is dropped in at the same time. The pots are placed on a shelf in an intermediate house, when they receive a good watering, which is sufficient until the cuttings show signs of rooting. As soon as this takes place they are removed to a cooler house, where they are well attended to with water. As soon as the pots are filled with roots the plants, according to their size and strength, are shifted into 3 and 4-inch pots, placed in a cool house again, and fully exposed to light and air. Towards the middle of May they are removed to a cold frame and placed on a layer of ashes, allowing them plenty of room, so that the leaves of one plant do not touch those of the other. In the course of two or three weeks the lights are removed during the day, except in stormy weather, and as the plants increase in size additional room is afforded them. At this stage the shoots are pinched back, when the robust character of the plants causes them to break at every joint. They are next shifted into 6-inch pots, and are kept somewhat closer until they have taken to the fresh soil, when the sashes are tilted and eventually are removed altogether. By this time the plants, which are dwarf and bushy, will be growing vigorously, and for the next six weeks they are simply watered as required, and kept free from weeds and dead leaves. They are never allowed to become crowded, but on the contrary all sides of them are fully exposed to air and light, so that the growth is matured. This I consider a point of considerable importance, and one that never ought to be lost sight of. By August the plants are sturdy in constitution, and the pots are full of roots in vigorous action. They are now ready for their final shift, but before giving this we pinch back any shoot in advance of its fellows, or any showing their flowers are pinched back until the time they are required. All the strongest plants are sorted out and potted in 8-inch pots, leaving the remainder for the early-flowering batch. They are again removed to the cold frame, where they remain until the middle of September, when they are removed to a cool house, where they have plenty of air and light. In this house they are kept through the winter, keeping the house warmer as the cold weather increases, say from 55° to 60°. The stage in this house is rather near the glass, which keeps the plants from drawing up weakly. As they open their blooms the plants are placed in the conservatory. On all occasions we supply water of the same heat as the house or a few degrees warmer. Another system we adopt for late winter-flowering is that older plants are cut back in the autumn after the wood has been well ripened. These are repotted in rich soil and grown on, and always prove valuable in February and March.

I will now describe the compost we employ for the plants, the proper preparation of which I consider of the highest importance. Good loam which has been stacked up for several months is the main ingredient. This is pulled into pieces of the size of an egg, not chopped up with the spade, and spread out in fine weather in a layer of about 9 inches deep. To this we add a sixth part of well-decayed cowdung and a sixth of leaf soil, the whole being well mixed together, spread out as before, and turned over every day for a week, then it is thrown into a heap and covered over with bags or mats. A slight fermentation then takes place owing to the amount of solar heat absorbed. This I consider of the utmost importance to bring the soil to the proper condition for use. We have used this compost for almost all softwooded plants, adding peat, sand, charcoal, &c., according to the description of the plants we are potting. For Zonal Pelargoniums we add one 10-inch potful of charcoal and one 6-inch potful of bone meal to every barrowful of the compost.

I now submit a list of distinct and useful varieties for autumn and winter flowering. Mrs. Leavers, deep pink, fine shape; Louisa, tinted rose, slightly spotted, fine; Mrs. Whitby, scarlet, white eye, very free; Mulberry, splendid dark mulberry colour; Mary Pearson, rosy scarlet; Jealousy, salmon; White Vesuvius, this is an acquisition to all who require white flowers in winter; Dora Charlton, crimson suffused with purple; Lizzie Brooks, rosy scarlet, fine form; Kleon, brilliant scarlet; and lastly the good old Vesuvius, one of our freest winter-bloomers, no wonder it becoming such a favourite amongst market growers. I have found out that the varieties best adapted for winter flowering are those which expand their pips well, as some varieties simply cup and do not open boldly.—J. LLOYD JONES.

NOTES ON "D., DEAL'S," NOTES—IXIAS.

I REGRET to see in "D., *Deal's*," notes from his garden in 1878 such a series of failures, mishaps, and disappointments. Were he not an energetic cultivator he would almost be induced to give up his garden as a hobby and take to something which would hold out a fairer prospect of success.

With reference to the failure of Ixias I will advance my views. With due respect to your correspondent Mr. William Taylor, whose writings are at all times practical, clear, and concise; though I differ from him in part with regard to the failure in question, I scarcely think Ixias sufficiently seed-productive to be injurious to the bulbs, although it is quite possible they were kept out of the ground or dry too long. I should attribute their non-flowering in the main to insufficient ventilation. In cultivating these plants air is the great desideratum. Everything else may be all they require, but if ventilation is neglected they fail. Rather than allow my Ixias to be drawn up blanched and weak I would much prefer their having to endure 5° of frost. This will in nowise prevent them flowering. They have often endured considerably more: for example, this season they have been quite unprotected, and we have had it sharp for Guernsey, 9° of frost having been registered at 18 inches from the ground amongst the beds in which the Ixias are planted. I rather like to see the ends of the grass browned, as it is an omen they have not received too much coddling.

The principal point is to obtain strong sound bulbs. This is at times difficult, as some of the seed and bulb merchants make it a point to study low prices, and hence they obtain their supplies of Ixias from Belgium and Holland, in which places they are not even brought to the perfection that they ofttimes reach in England. I have seen Ixias in both the aforesaid countries, but never in such fine health and flowering as well as I have witnessed them in England. I am informed on pretty good authority that some dealers do not supply their orders for bulbs from the same source as from where they obtain the blooms which induced the customer to give the order. Can this be true? If it is, we need not be surprised at failures and disappointment.

This last paragraph, however, does not refer to "D., *Deal's*," plants which bloomed well previously to last year. I would yet recommend him, if he has any in pots, to commence without delay careful ventilation. I say careful, as it would be very imprudent to adopt too sudden a change in their treatment. —H. C. S., *Guernsey*.

THE HARDINESS OF GREENHOUSE FERNS.

IT may interest some of your readers to know that not only Lygodium scandens, but also Adiantum daphnites, Platyloma falcata, Polypodium Billardieri, and a few others have passed the late severe frost in a cold wooden frame, with large holes scratched under it by rats, and thence admitting the cold, so that the thermometer fell nearly down to zero. The Ferns seem

as well and fresh as those in a warm house, and no one need fear planting them out in the open fernery after this test. I may add that for some years I have grown the Killarney Fern (Trichomanes radicans) in the open air with no more protection than a piece of stone projecting partially over it, and though it does not grow much, it lives and seems likely to continue to do so. We have intense cold here, but a dry soil. Polystichum acrostichoides incisum, planted out in an unprotected fernery, looks as if severe frost was its natural climate. —L. NORRIS, *Trumpington, Cambridge.*

PEAR ELECTION.

If a reliable list of Pears for each locality is to be attempted the subject will require ample and careful consideration. If this be not done many people will be misled, and the list will soon be discarded as worthless. There are many difficulties to be overcome. In the first place, who has such an extensive knowledge of all the best amateur growers of Pears in each district as to enable him to make a selection of the proper persons to send in lists? With great respect to the accomplished author of the "Fruit Manual," I can hardly think that he will venture to undertake that task. He might, doubtless, receive considerable assistance from the leading cultivators of fruit trees for sale. They must know many of the amateurs in each county who take an interest in Pear-growing; from private friends, too, he might receive assistance. Gardeners are more readily found who can give useful aid.

In the next place the returns would have to be a good deal more than a mere enumeration of sorts. The situation, aspect, amount of shelter, nature of soil, the manurial aids given, the quality more than the quantity of each fruit, must all be stated.

Again, are the lists to be viewed as of equal value? If they are to be received from a selected number of persons only in each district, of course they will be treated as of equal value; but if everyone who chooses to do so may send a list, then the task of the returning officer in weighing the relative values of the several lists from a district will be a delicate and arduous one indeed.

If the election is to be an open one I am apprehensive that many of the fine Pears of comparatively recent introduction will be outvoted by the older sorts, to which, in my district at all events, so many people confine themselves, under the impression that the newer sorts would not answer with them, although, of course, they have never tried them, nor probably has anyone else in their neighbourhood. If lists were accepted from gardeners in my locality, those two fine Pears Thompson and the Doyenné du Comice would be conspicuous by their absence; and yet I have grown and fruited them both for several years in the open border with perfect and invariable success. Unless care be taken to guard against this danger the election will be productive of little or no improvement in fruit culture, for a few of the old sorts would be confirmed in their pre-eminence to the exclusion of newer and in many instances better sorts.

I can see no good result likely to be attained by giving lists now, or by discussing the merits of particular sorts. I would rather see the discussion confined to the method of procedure, the anticipation of difficulties, the possible causes of failure, and the best ways of overcoming them. What we want is the result of the experience of those who have spent money, time, and patience in ascertaining what sorts, new and old, will answer in their several districts.

With due deference to those who have expressed a different opinion, I utterly ignore the idea that a selection of twelve Pears will suffice for any district. Twenty-four sorts would be enough for anyone to choose from. I have thirty sorts in the garden in the open border, and above 130 trees. I would rather not call to mind the number that have been discarded as useless here.

Surely the lists of Pears for cultivation in the open border should be distinct from those fit for walls. If selected lists only are taken they should ultimately be published, with the name and address of the authors, who would thus be responsible to their neighbours for the selection. They would then be able to weigh the value of the list given for their district, and greater care and attention would be secured in framing the lists.

If the periods of ripening are not given the fruits should be arranged in their order of ripening, so that anyone wishing to plant a limited number only might be able to select those which would give a succession of fruit.

The aim of us all is, I imagine, to assist the cultivation of good fruit by the million—those who are compelled by circumstances to grow them in the open border rather than on walls. The palatial gardens of the wealthy need little help.

The importance of the subject is so great and interests so many persons that we may expect sharp differences of opinion on the many points to be adjusted. Let us hope, however, that the discussions, whilst they are free and unrestricted, will be conducted with courtesy and good humour.—J. S., *East Riding.*

LEUCOPHYTON BROWNII.

My experience of this plant is remarkable. Some time after my appointment here I noticed a batch of plants of straggling habit, but through pressure of other matters considerably neglected; but having foliage of an inviting appearance I thought possibly I might turn the plant to advantage in our carpet beds. Trying to strike it in bottom heat proved an utter failure. I then tried to strike it without bottom heat and with a top heat of 70°, but it obstinately refused to put forth a single root, and damped off in a provoking manner. I next tried it in a cold frame, and pricked out the few remaining cuttings in sandy loam, sprinkled them over, and closed the light. In a few weeks the cuttings began to grow of a pale sickly green, and I thought the plant would never make a name in the parterre. I removed the light and left the plants to their fate. One day passing the frame I looked, and to my great surprise and joy my ill-conditioned friend had been transformed as if by magic into a veritable cloth of silver. The cuttings had grown rapidly, and become interlaced The exposure to the air, good soil, and changed condition of life brought a silvery sheen in its white stiff shoots—a marked contrast to its ill-conditioned parent; and not until then did I recognise an old friend of my early Alpine collecting days—Leucophyton Brownii. I then found a place for it in a carpet bed I contemplated forming—viz., a bed filled with plants, the greater part of which were hardy or merely required at most the protection of a cold frame—plants suitable for a large class of your readers who aspire to a carpet bed, but have not the warm structures necessary for wintering the more tender varieties; and here I would refer those interested in carpet bedding to fig. 11, page 97 of this journal, where they will find a charming arrangement and blending of colours, not the least prominent of the plants being Leucophyton Brownii. Cuttings inserted in a frame, and treated similarly to shrubby Calceolarias, is the best mode of increasing this distinct and pretty carpet bedding plant.—A. GRAHAM, *Superintendent, Royal Gardens, Hampton Court Palace.*

GLASS—WHAT SORT IS MOST SUITABLE FOR GLAZING VINERIES?

Not as a teacher do I moot the above subject, but that I may provoke a discussion on a topic of very much interest. Much of late has been written on the properties of blue glass, or, as it is usually designated, the violet-ray theory. From a little research of mine on light I find, speaking theoretically, that the violet ray is the very worst for vegetation when the other two are excluded—viz., red and yellow. The blue glass produces a growth similar to that produced at night or in a very shaded situation. The blue or violet are called the chemical rays, the red the heat-giving, and the yellow the light-giving. So by glazing with blue glass we exclude the red and yellow, and by glazing with the red we exclude the blue and yellow, and again by glazing with yellow we exclude the red and blue.

We have also thick-ribbed glass and frosted glass. My early vinery is glazed with thick-ribbed glass, and I cannot help thinking that it deters the ripening of the fruit: it seems so to obstruct the sun's rays. But it may have other good qualities I know not of.

I have written these notes with a hope that those who can speak with authority will tell us what is the best sort of glass for vineries, &c.—plain, coloured, or ribbed.—B. G., *Co. Down.*

NOTES AND GLEANINGS.

We understand that the Earl of Stanhope and the Earl of Egmont have recently become members of the NATIONAL ROSE SOCIETY, and that the Rose Societies of Reigate, Brockham, and Maidstone have affiliated themselves with it, and so

become entitled to receive its medals. These are proofs that the Society is establishing itself in public favour.

—— We learn from the Hon. and Rev. J. T. Boscawen that he intends offering this year at the horticultural department of the Bath and West of England Show a handsome prize for the best specimen Orchid in the Exhibition; and the exhibitor shall be at liberty to show any number of plants. Loans of plants are also requested, for which sums in money will be given as gratuities to exhibitors. The meeting is to be at Exeter, and plants must be staged on May 31st.

—— An amateur, anxious to encourage the cultivation of Amaryllises, offers the following prizes to be competed for at the Royal Horticultural Society's Meeting to be held at South Kensington on April 8th:—A, For the best dark seedling, first, £2; second, £1. For the best light seedling, first, £2; second, £1. No prizes will be awarded unless the seedlings show decided form and substance of bloom. B, For the best six Amaryllis, named, three to be dark and three light varieties, first, £2; second, £1. The prizes to be awarded only if the exhibits are considered of sufficient merit. Form, substance, and breadth of petal are necessary points. C, For the best variety selected from among the plants exhibited in Class B, for the best dark variety, first, £1; second, 10s. For the best light variety, first, £1; second best ditto, 10s.

—— Mr. D. Thomson informs us that the amount of frost registered at Drumlanrig from December 1st to February 28th inclusive is as follows:—December gave 337° frost, January 348°, and February 141° = 826°, or a fraction more than 9° for each of the ninety nights. The situation of the thermometer is in a sparred box 4 feet from the ground, 191 feet above sea level, and twenty miles inland. The instruments are those of the Scottish Meteorological Society.

—— Our correspondent "Allerton" explains that his observations on making Chrysanthemum show schedules more explicit, were suggested by being informed that such varieties as Faust and Fingal would not be regarded with favour by southern judges, and he therefore desired to know what varieties are the most suitable for stands in the south. As that information has been given by Mr. Newton and Mr. Moorman and accepted, further discussion on the subject is rendered unnecessary.

—— A very successful meeting was held at the Rose Hotel, Canterbury, on the 28th ult., Captain Lambert in the chair, when it was determined to found a Rose Society and hold a Rose Show in the old city on July 3rd. Amongst those present were Col. Cox, the Revs. J. Buchanan, H. B. Biron, H. H. D'Ombrain, Dr. Pittock, Messrs. Mount, Young, Kidd (of the firm of Kinmont & Kidd), &c. The Rev. W. B. Biron and Mr. Mount were appointed Secretaries; and there is every prospect of the Society making a good start with such indefatigable Secretaries and under such favourable auspices.

—— A correspondent requests information as to the origin and history of the following Apples:—1, The Scarlet Pearmain (with the synonymes of Bell's Scarlet, Hood's Seedling, Oxford Peach). Little seems known about this beautiful dessert Apple. Where did it spring from? Who was Bell? Hood? and why Oxford Peach? 2, Adams' Pearmain (or Norfolk Pippin), is equally without any authentic history, though a very favourite and valuable dessert Apple. 3, Cellini, one of the most useful and profitable of modern Apples, which the "Fruit Manual" says "originated with Mr. Leonard Phillips of Vauxhall;" but when and how? 4, Tower of Glammis (syn. Glammis Castle, Gowrie, Carse o' Gowrie). Where and how did this first-rate culinary Apple originate? Scotland to the rescue! 5, Pott's Seedling, an excellent cooking Apple, a prolific rival in the market with Lord Suffield, but a much better keeper. Where is its home? Who is Pott? 6, Pym Square, or Plym Square, is a bright scarlet Apple that has migrated from Devonshire into Herefordshire, and succeeds so well there as a cider Apple that it is very desirable to know something of its origin and its singular name. 7, Winter Hawthornden (or New Hawthornden), another good variety without a history.—[We shall be glad to publish information relative to the above Apples.]

—— "About twelve months ago," writes "T. S.," "I read an article in the Journal on the culture of Echeveria retusa. I carried out the advice given. In the spring I divided the old plants into single crowns, taking care that each piece had a little root. After all danger of frost was over I planted them in the open ground, keeping them clear from weeds through the summer. In the autumn I potted them, and we are now enjoying the result. I have some plants with two dozen spikes of flower on them, which have been in bloom for some weeks past, and will continue flowering for some weeks to come. Several gardeners paying me a visit this winter could scarcely recognise the old and too often despised Echeveria retusa in the fine plants referred to."

—— An Easingwold correspondent states that the frost has made sad havoc there. "Nearly all my standard Roses are killed. Weigela rosea, which has been trained upon a wall for nine or ten years, is completely destroyed. Kalmias and Arbutus, which were among the Rhododendrons, are quite dead, and also a few hybrid Rhododendrons, which were in pots, are gone. Vegetable crops have also suffered. All our late Broccolis were destroyed, and have already gone to the refuse heap; also the autumn-planted Cabbage and those pricked out for spring planting are quite dead. Tripoli Onions are not worth planting out."

—— Mr. Badger refers our correspondent "Wothorpe," who is seeking information on hybridising, to read Mr. Burbidge's valuable book (published by Blackwood & Sons, Edinburgh), on "The Propagation and Improvement of Cultivated Plants," in which much information will be found on this subject, especially in the chapter on "General Remarks on Hybridising and Cross-breeding," pages 87-137, and "Artificial Fertilisation and Cross-breeding," pages 149-167; also to consult Dr. Lindley's "Theory of Horticulture," Chap. xviii., "On the Improvement of Races," pages 481-506, second edition (Longman & Co.).

—— "It is interesting to find," writes Mr. Peach, "that many plants supposed to be tender can resist cold and even frost under glass much more than was anticipated. The Rhynchospermum jasminoides for instance, a very long-lived and nearly hardy plant well known to most gardeners, is often grown in a warmer house than is suited to it, and from its scent, pretty white flowers, free-blooming character, and neat foliage, is well worth growing. Linum trigynum is better again in a cooler house; and though Lapageria rosea and alba do well in a warm house, they can endure a great deal of cold and like nothing less than direct sun, especially on the points of their shoots. I am glad to see that Lygodium scandens, and very likely other greenhouse and stove Ferns, can stand a fair amount of frost. I had plants of Maidenhair with the pots frozen hard this winter which seem to be perfectly recovering."

—— Mr. G. Dray, Kelsey Park, writes to us as follows on growing Mushrooms under difficulties:—"For experiment I made up a Mushroom bed 5 square feet in the corner of one of the hot-water pits. I spawned the same on the 26th of December last. I gathered the first dish of Mushrooms for my employer's table on the 1st of February. Since that date I have gathered twelve dishes of excellent Mushrooms. I have had to open the pit, and the light had to be propped up while I gathered them in spite of wind, rain, frost, or snow. Still the Mushrooms grow and are looking well; but I find where the external air comes with full force upon the bed I scarcely have gathered a Mushroom."

—— French cultivators adopt the following method to hasten the germination of the seeds of stone fruit:—An earthenware vessel is filled alternately with bran and the stones, moistening the layers as the work proceeds. The bran will ferment and soften the hard substance that envelopes the kernels; after the lapse of ten to twelve days they will be ready for planting, and eight to ten days will only elapse before the seedlings appear above ground. The above process is, however, too strong for the seeds of such fruits as Pears, Apples, &c., but their germination may be hastened by putting them in layers without the addition of bran.

—— Quettah, says a correspondent of the *Daily News*, possesses some charms of its own. As compared with the unutterable bleakness of the neighbouring glens the valley of Shawl may be described as comparatively fertile, and the mongrel population of Beloochees and Afghans make the most of their natural advantages. Wherever possible they apply artificial irrigation on the lower slopes by means of an elaborate system of subterraneous watercourses, locally called kahreezes. The principal crops are Wheat, Barley, Rice, and the pulse well known throughout India by the name of Moong (Phaseolus Mungo). Orchards of fruit trees abound, as in all the valleys both of Afghanistan and Beloochistan, particularly the Mulberry, the Plum, the Apricot, and the Peach. Another

valuable product is assafœtida. Unfortunately there is but little grazing for cattle, except the Camel Thorn, which does not spring up until the summer. But the chief attraction of Quettah to an European eye is the approximation of its flora to that of a temperate clime. On the steep hillsides grow Thyme and other aromatic herbs, blended with the familiar Daisy and the scarcely less welcome Dandelion. There are fields of Clover, Trefoil, and Lucerne, which in spring time are carpeted with Tulips and Irises. The Buttercup, the wild Anemone, and the common English Speargrass have also been found.

—— Mr. Patrick Barry, of Rochester, N.Y., a good American authority on fruit culture generally as well as on the subject of ripening Pears, says :—"The process of ripening on the tree, which is the natural one, seems to act on the fruit for the benefit of the seed, as it tends to the formation of woody fibre and farina. When the fruit is removed from the tree at the very commencement of ripening and placed in a still atmosphere the natural process seems to be counteracted, and sugar and juice are elaborated instead of fibre. Thus Pears which become mealy and rot at the core when left to ripen on the tree, become juicy, melting, and delicious when ripened in the house."

YOUNG GARDENERS AND THEIR DIFFICULTIES.

I was pleased to observe the letter of "York" on the above subject, and also the good advice offered by the Editors. Gardeners have their difficulties as well as learners, and one of their difficulties is procuring young men to suit them who have the experience expected of them. The wages and privileges the young men meet with now are much greater than they were twenty or thirty years ago; but are the men better? Many of them are too ready to complain without a cause and to forget their own shortcomings. There are young men in gardens learning, or rather waiting to be gardeners, who ought not to be there—men who are missing the golden opportunity they have for improving themselves, and hindering others who would gladly fill their places with credit, and who would strive with diligence and earnestness to learn their profession.

I am afraid the system of employing so many young men for short periods in gardens is not a good one. Young men are often only kept for two years. I would ask, What do young men learn in that time? If they are in a large establishment they pass from one house or branch to another, and have about as much chance of learning their business as they would have of learning geography in riding through the country and looking out of the window of a railway train. With fewer men and better it would be an advantage to all, employers as well as those employed.

Gardening is advancing faster than many are inclined to believe, and young men will have a great difficulty in obtaining situations as head gardeners unless they take great interest in their work and make themselves thoroughly competent in every branch by much study and actual work out of doors as well as in. They must not think they can learn enough in a year or two, or rather gain sufficient knowledge or experience to fill places of trust satisfactorily. I have been a head gardener now upwards of thirty years, and I am not ashamed to say I am still learning. To keep up with the progress of gardening a head gardener has to study almost night and day, for no one knows the difficulties they have to contend with to be successful in all branches.

A gardener should always be courteous to everyone whether above or below him in position, and should be as ready to give a word of encouragement to the men he has under him when he sees them deserving it as he should to tell them of their faults, which should always be done in a calm and straightforward manner. In giving a man a character it is important always to speak of a man as you find him, whether good or bad, and encourage those only who really are deserving of it. By that means young men will be stimulated to exert themselves and to make the best use of their time; and in the end we shall have young men better fitted to undertake the duties and responsibilities of a head gardener when the time comes for them to be recommended for that position.—J. C., *Warwickshire.*

I am very pleased to see the different remarks on the above subject by your several correspondents. Being a young gardener myself, I appreciate the endeavours made to bring this subject before the gardening world. Unlike "York," I have had amongst other experience many opportunities to learn kitchen gardening. I was admitted to the craft when quite young. I was between the age of thirteen and fourteen when I first began my duties as crock boy, pot-washer, weeder, &c. I had a better start perhaps than many, for my early training was under my father, who was a very strict disciplinarian, and he endeavoured to give me a good start in life by laying a sound foundation for my after progress. I had the opportunity of learning the rudiments of gardening both in and outdoors. I was always expected to keep a memorandum of the time of sowing, planting, &c., starting of a vinery, and general forcing work. In a large orchard house I had the means of seeing the different varieties of Peach, Nectarine, Apricots, Cherries, and Plums, and a few Pears, all grown in this house; in fact, to my early training I owe much of my success since.

I next obtained a situation as journeyman in a large establishment, and had charge of conservatory and plant houses, and here I was supposed to be in my one department from 6 A.M. till 6 P.M., not daring to handle a spade or fork in the kitchen garden. Some time after I began my duties in this place I was asked by the kitchen gardener to assist him in earthing-up some Celery, as his staff of labourers was called away. I was delighted at a change, but scarcely had I procured a spade and begun work when the head gardener came up and asked me what I did there! Did I not know my place? Had I nothing to do? I apologised and stated the circumstances of the case, and that I was asked to lend a hand. The answer was, "If you want to do kitchen garden work you can do so, but leave the houses altogether." This rather hurt my feelings, as I did not think there was any harm in lending a hand for the short time I was required.

I subsequently became a "general foreman." Here I was in my glory. I had my set of tools—a scythe, spade, fork, &c. I occasionally turned out in the early morning mowing; in winter during favourable weather trenching, lifting old pyramidal Pears that were affected with canker and replanting into better soil, altering flower gardens, laying turf, and many other items. To this place and my worthy master I owe most of my experience in Pine-growing, Grapes, Cucumbers, Melons, and Mushrooms, early forcing of vegetables and salads (of which I gave some remarks in a former volume). I was required to keep a memorandum of sowing and planting time of the crops coming up and when ready for table, list of vegetables required in the house every day during the year, and the market value of the same we were supposed to know by perusing the good old Journal.

My next place, and the last as under gardener, was again in the plant houses as foreman, and here I had the opportunity of seeing flower gardening carried out on an extensive scale, it being one of the finest flower gardens in England. I refer to the place where the much-lamented friend of young gardeners, Mr. Robert Fish, lived so many years. But I had not the good fortune to know him otherwise than by his writings, as he died some six months before I entered on my duties here. The conservatory and corridors under my charge were very extensive, and required to be well kept, very clean and gay all the year round. General forcing I had the opportunity of seeing carried out, and orchard-house management.

It will thus be seen I have had better opportunities than many men, though I had many difficulties to overcome, but perseverance and a thorough love for horticulture helped me to surmount them all. So to my younger brethren I say "Speed on." Many young men do not enter a garden before they are nineteen and twenty years of age, some of my own acquaintances did not. They are very often draughted into the houses, and if they do not take any interest in kitchen gardening seldom ever see round it, their duties during the day compelling them to remain in the houses, and during the evenings they do not seem to interest themselves with the details of kitchen gardening—the most important part of a gardener's duties.

I will next give my first two years' experience as head gardener, and how I surmounted the difficulties of which "York" speaks.—F. H. Froud.

APPLYING LIQUID MANURE IN WINTER.

Opinions vary considerably as to the wisdom of applying liquid manure to ground in winter, and to trees when they are in a dormant state. Theorists may produce plausible reasons that the system suggested is wrong in principle because trees cannot appropriate the food provided except when

they are in a growing state. Admitting that to be the case, yet I find that the food is not wasted, for I have seen undoubted benefit result from the practice in question. It is extremely doubtful, however, whether the roots of trees are really dormant in winter. I think they are steadily working below ground, even if the growth above is resting. It is certain that deciduous trees require moisture at the roots during winter, and that a considerable amount of it will not do them any injury. Provided the ground is drained and the water is not stagnant no reasonable amount will injure any deciduous tree when it is what is termed in a resting state.

It is during the winter season that a convenient opportunity often occurs for emptying tanks and cesspools. If the refuse is spread on grass land in winter I think none who have had experience in the matter can dispute the benefit that the grass receives by the application. You may "tell to a yard," as I have often heard remarked, how far the dressing has reached by the greener appearance of the grass throughout the following season.

It was after noticing the good effects of the practice referred to, not in one season, but many, that led me to conclude that if the rich tank water were good for the grass crop it would be equally beneficial if similarly applied to garden crops. I tried it cautiously at first and experimentally. I had, for instance, two beds of Roses, but only half of one of them was soaked during the winter with rich liquid; I tried it also on half a dozen Gooseberry trees, the same number of Currants and Raspberries, also to a portion of a Strawberry bed; I also poured it freely on vacant ground, which was afterwards cropped with Potatoes, Cauliflowers, Onions, &c., and in every instance the effect was beneficial.

In nothing was the improvement more marked than in the case of the Roses, and for seven consecutive years the beds of Roses had no other assistance than that afforded by liquid manure applied in the winter, and finer blooms and better foliage could scarcely be desired. The soil of the garden is a moderately strong loam and the subsoil is tolerably porous, yet not sufficiently so for the water to pass away with rapidity. I have applied liquid manure in winter to the roots of wall trees and Vine borders, and always, as I thought, with advantage; and certainly never with results that were regretted.

I submit this experience in case there may be any who have an opportunity of obtaining tank water and the drainings from dunghills now, and yet who hesitate to apply it for fear it may injure rather than benefit their ground and crops. If "WYLD SAVAGE" can now, during favourable weather, treat his Roses to such cheer as I have indicated the good effects of the treat will be seen next June. I advise him to give them it good, and plenty of it.—A. N. G.

MUSHROOM FAILURES

MR. BARDNEY'S remarks upon Mushrooms on page 132 are interesting to me, and I believe I have suffered by using droppings from horses which were receiving medicine. I made up a bed in October in the usual way, and from that bed I have only had two Mushrooms, and yet the bed is in the same place where they have usually done well. I was at a loss how to account for this sad disaster, but I was determined not to be beaten. I had another place where I usually force a little early Rhubarb, and when the best of that is pulled it is cleared out and a succession bed is prepared for Mushrooms; but this year the Rhubarb had to march out quicker than it went in when I found that my Mushroom bed was going to fail. A second bed was therefore made and spawned on the 12th of December, but it has shared the same fate as the first one. But since my attention was drawn to Mr. Bardney's notes I have made some inquiries about our horses, and I find they have been receiving medicine for the last six months or more, so that if Mr. Bardney's remarks are correct I may feel satisfied that the cause of my failures is clearly established. I think I shall try the same plan in making my next bed, as Mr. Bardney has done, from leaves. But I should be glad to know in what condition the leaves must be when made into a bed, or if any short or long stable litter is used.—E. G. JACKSON.

[The system that I adopt with leaves is as follows: The leaves were collected as they fell and thrown into a heap until sufficient were gathered to make up a bed, the heavy rains were kept off them so as to keep them in a tolerably dry condition. They remained in the heap about a fortnight, and were turned at intervals of three or four days, after which they were pressed as firmly as possible in a bed. In a few days the bed became very hot and was lightened to let out some of the steam. Shortly afterwards the surface was firmly beaten down and soiled with 4 inches of good fibry loam with a seventh of leaves, mixed together and beaten firmly. When the heat was on the decline the bed was spawned, the spawn being inserted about 1 inch deep, and 2 inches of good loam was placed on the top, the whole being made very firm, and precautions taken that the bed did not get too hot after being spawned. We have mixed about a seventh part of decayed manure with the loam, only using leaves for the purpose of maintaining heat in the bed, which they will do for a long time if used in a moderately dry state. I would not recommend decomposed manure to be used with the leaves. Although we gathered several Mushrooms the bed did not continue bearing long. It is not a good plan to use too many leaves mixed in the loam, as they have a great tendency to cause the spawn to run very stringy. I do not wish to convey to the readers of the Journal that I would use leaves in preference to droppings, provided the droppings were not produced under the circumstances referred to in my previous letter. Droppings from horses receiving medicine and Carrots are useless for the Mushroom grower, and leaves are certainly to be preferred.—WILLIAM BARDNEY.]

WOLFF'S GARDEN PENCILS.

THE pencil referred to by "A CROYDON AMATEUR" last week cannot be of our manufacture, as we do not make a 6-inch garden pencil, our polished pencils being 5 inches long, containing from 3½ to 3¾ inches of indelible carbonic material (not lead), and our plain pencils are 6⅞ inches long, with 5 to 5¼ inches of the above-named composition. The reason for not putting the marking material through the pencil is, that it is too valuable to be thrown away when the pencil is worn down too short for use. Pencils of the better qualities are never made with lead throughout for this same reason, although as regards the processes of manufacture it is cheaper to put the lead quite through the wood.

With reference to the remarks of "A KITCHEN GARDENER" (who speaks of self-defence whilst attacking us), we strongly protest against his having "cut away" any portion of a pencil and then submitting the remainder of it to you to be measured. We herewith send you three dozen of the pencils in question, which we guarantee to have been taken indiscriminately from various parts of the bulk of our stock, in the hope that you will have some dissected and thoroughly tried, so that we may on reliable authority have this unpleasant controversy ended. It is a singular fact that your correspondents are the first and only persons who have found any fault with these goods during the period of at least twenty years they have been before the public.—E. WOLFF & SON.

[Messrs. Wolff & Son have sent us a boxful of their garden pencils, and having submitted them to a thorough examination we find them in every respect as Messrs. Wolff have represented them to be in their letter. There can be no doubt that the pencil which "A KITCHEN GARDENER" sent us was an exceptional one, and may have been the result of neglect on the part of the workman; and we think that Messrs. Wolff's explanation of our Croydon correspondent's case is perfectly satisfactory, for in no instance have we seen their garden pencils 6 inches in length. We think it right to say that the pencils submitted to us by Messrs. Wolff are the best we have ever seen for the purpose for which they are intended. Further controversy on this subject is unnecessary.—EDS.]

SMALL VERSUS LARGE BOILERS.

A "KITCHEN GARDENER'S" experience (page 158) is so adverse to my practice that I feel compelled to submit a few remarks on the subject. On taking charge of this place I found nine boilers heating twelve houses in what is called here the Glass Square. Only three of them did the work satisfactorily. I pointed out the defects to my noble employer, and told him I could have the houses heated with one boiler if he would allow Messrs. John Weeks & Co. to do as they thought proper. He told me to write to the above firm, and next day Mr. Deal, one of the firm, came down. After taking a plan, levels, &c., he sent in an estimate to fix two boilers side by side, and to put the whole in the best form, for so much money. The plan and prices being approved of the work was done.

The proof of the pudding is in the (h)eating, and for ten years

past not a sixpence has been paid for repairs. We have two boilers set, and in ordinary weather one of them heats the whole of the houses, but in unusually sharp weather we have both heated, but only one going hard. I can at all times get my houses to the proper temperature, either hot or cold, under this arrangement.—ANOTHER KITCHEN GARDENER.

CARPET BEDDING.

THE taste for carpet bedding appears to engage the attention of the gardening world more and more every season, and its appreciation also seems to be on the increase. Its origin and form may be attributed to the public parks and gardens, but of late years it has been extensively and successfully applied in private gardens, so much so that without examples of this artistic form of bedding many gardens are not considered complete. When blended with other forms of garden ornamentation carpet bedding is always refreshing, and breaks the monotony which otherwise must prevail where flowering plants and the mixed style of bedding are alone represented. Masses of flowers soon lose the power of arresting attention, and a flower garden of greater diversity of embellishment is rendered so much the more enjoyable.

Carpet bedding has great attractions in its beautiful figures. Then there is the latitude afforded for the harmony of colours in the planting of these figures, the prominent colours being toned down by soft and refining hues; the plants, too, can be kept as even on the surface as a Turkey hearthrug. This evenness, however, is an objection to some observers, who prefer part of the panels, especially the centre, sunk or raised from the general level of the bed; but this resolves itself into a matter of taste.

There are obstacles to the general adoption of this style of bedding, the one being the number of plants required to form one of the beds, and the want of proper and varied designs. Without these the effect is lost even when the best and most

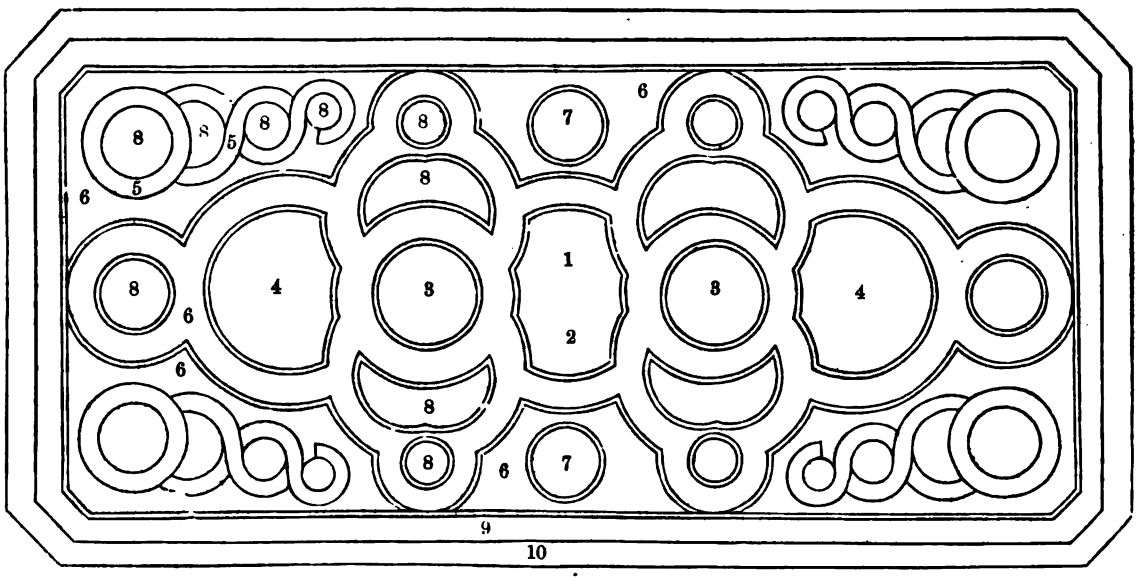


Fig. 23.—CARPET BED AT HAMPTON COURT.

1, Rochea perfoliata (central plant)
2, Sempervivum arachnoides
3, Saxifraga longifolia
4, Pelargonium Silver Tricolor
5, Golden Feather
6, Veronica incana
7, Alternanthera magnifica
8, Alternanthera amœna
9, Alternanthera paronychioides
10, Sedum glaucum
All the double-line edgings represent Golden Feather.

suitable plants are used. Good designs, although indifferently coloured, are more agreeable to the eye than a bed beautifully coloured. but the tracings of which are unsuitable and confused. The accompanying diagram is another of Mr. Graham's designs in the gardens of Hampton Court Palace, and was figured in his guide to the bedding arrangement of last year. This bed possessed two great advantages—viz., the whole groundwork was planted with that beautiful silvery and hardy plant Veronica incana, and all the outlines with Pyrethrum, which is almost hardy. There are also several compartments, which allow of a great variety of plants being introduced. The arrangement of last year which we have engraved had a remarkably good effect; but our readers need not confine themselves exactly to these plants, as an equally good effect could be produced by the use of others, but always avoiding violent contrasts of colour.

HOW I GROW AURICULAS.

IT is not given to mortals to command success, but they may deserve it. None more deserving of it than "D., *Deal*." In response to his "Notes," page 133, in reference to the above florist flowers I will note first my failures and then my success, the knowledge gained from the former conducing much to the latter. My failures were principally owing to (*a*) too much water when the plants were at rest; (*b*) a confined atmosphere when they should have had a free circulation of air; (*c*) and a too warm and moist situation, which they should never have. The first caused a premature and drawn growth, with perhaps a pip or two instead of the minimum truss of seven pips or flowers; the second left the plants much like the unhealthy children in the back lanes of our towns, who have never revelled in the pure chafing zephyrs of the green fields or mountain side, and hence have a pale sad sickly hue; while the last, besides the thin drawn growth—especially if they are in a high moist temperature when they are naturally at rest—prematurely exhausts the plants, and if the temperature is low and moist the leaves spot and decay. In neither case need flowers be expected, even should the plants survive. So much for my failures and their probable causes.

It has been said that "the man who sees his shortcomings, discovers the causes, and determines to remedy them (whether in the everyday transactions of life or in horticulture) has made a vast stride on the road to success." This, too, is *apropos* to the advice given recently in the Journal to young gardeners: but I must not digress, except to say I found it so. I first resolved, then, to grow my plants as much as possible outside. I am now speaking of the show or fancy kinds. The more hardy Alpines may be grown at all times unprotected I had a few stages erected (step-ladderwise) against a wall with the shelves retreating towards the top, and so arranged that the top shelf protected the one underneath from either hot sun or heavy rain, and at the same time admitted the freest circulation of air. The plants were free from grubs and worms of all kinds, but during the growing period they required more constant watering and looking after than perhaps they would in a pit raised on bricks, as is usually done, to admit air. I never saw a green fly on my plants; and as to the woolly aphis, which all the persistent applications of "D., *Deal*," failed to exterminate, I have never seen it in Ireland on Auriculas. The cheap, convenient, shelved struc-

ture referred to will suit a small collection such as mine or equally a thousand pots. Shelves to place the pots on inside around frames or plant pits would for obvious reasons be a great improvement in the winter and spring treatment. I left my plants outside until the frost became very severe; and as I considered a frame or plant pit too moist for them, I erected shelves on each side of a window with a southern aspect that could be opened at bottom or top as I consider most desirable. and here I wintered them admirably; indeed, I am not sure if they would not have done fairly outside as described. They commenced growing in January. I removed offsets or suckers, and started them in a warm pit, where they now seem fairly rooted, and those I continued in the same pots (chiefly young plants) I have once or twice every week assisted with rather weak liquid manure. I seldom employ pots more than 4½ inches in diameter, generally less, and at present it is pleasing to look at the fine healthy foliage of the plants and their advancing flower trusses.—W. J. M., *Clonmel.*

ADIANTUM FARLEYENSE.

I HAVE to thank three of your correspondents for replies with regard to Adiantum farleyense. I quite agree with Mr. Shuttleworth, that it is so rare to see a fertile frond on it that it may be grown as perfectly as Mr. Shuttleworth grows it for many years without producing one. Great heat, shade, and moisture will, as he says, produce very fine plants, but my own experience in favour of colouring of the younger fronds and also for stiffness of the stalk of the fronds, is that plenty of light and a moderate temperature, though it may not produce such large plants, improves the character of the foliage. As I have never yet seen an unfertile frond of Adiantum scutum, I still think, from a very close comparison of A. farleyense and scutum with regard to the shape of the pinnæ and form of growth, that farleyense is the unfertile form of scutum, and not, as Mr. J. F. Cranswick suggests, a hybrid between Adiantum tenerum and A. macrophyllum. There is no reason why sports from Ferns should be necessarily unfertile; in fact most of the sports of Filix-fœmina and Pteris serrulata are fertile.

I quite agree with Mr. Shuttleworth in his statement that fronds cut from plants grown in a colder house last better in water, and for cutting for bouquets, than those from greater heat and moisture; but I am much inclined to ask the question, Are not Ferns as a rule grown in too much shade and moisture? I have always noticed in their wild habitats that Ferns never do so well as when they have plenty of light though not too much direct sun, and they especially like to grow among the débris of broken-down rocks and crags alongside a stream, or in a valley, but where trees do not too much overshadow them.

As I have always been interested in A. farleyense since I saw the first plant introduced into this country from Barbadoes, I am glad that Mr. Cranswick has sent you the extract from Mr. Amphlett's book called "Under a Tropical Sky," which alludes to his seeing the Fern in its native habitat at Farley Hill.

Will "R. M. A." kindly supplement his note in your Journal of February 6th by telling us when and where the plant he names with the spore cases was exhibited? If the plant had spore cases I should have little doubt it would also have spores; but the question is, Did the fronds which had the spore cases assimilate to those of A. scutum in the continuous form in which they edge the pinnæ of the fronds, or were they distinctly different?—C. P. PEACH.

WHEN SHOULD WE DIG?

I HAVE had the pleasure of reading the Journal now for three or four years, and my garden may indeed be said to be the result of practising the advice there given so clearly; but of late I have been unable to come to a decision on the important question of when to dig. Two of your chief contributors last year wrote on the subject, and appear to put their faith in spring as opposed to autumn and winter digging; whilst "A KITCHEN GARDENER" recently urged the advantage of autumn turning of the soil for March seeds (Onions, Parsnips, &c.), but would not touch the ground for anything else until April. The farming brotherhood, again, who may be held cousin-german to the gardener, would and do plough and harrow, and then drag again, all fallow land in frost, if only it be dry. Some, again, amongst ourselves turn up every plot as fast as winter greens are done with, frost or no frost. Will some of your many able correspondents give us the benefit of their experience, and tell us whether we should dig in autumn, in winter, or in spring? whether we should dig in frost? whether we should turn over land already dug to have it frozen more deeply? if we are to dig in autumn, how late? if in spring, how early we may ply the fork? Lastly, does the rule, whatever it is, hold good for all soils? The question of when to apply manure is a kindred one, and I hope we may have some opinions on this likewise.—A YORKSHIRE AMATEUR.

ANEMONE THALICTROIDES (THE RUE-LEAVED ANEMONE).

THIS species in appearance is more a Thalictrum than an Anemone, though botanists seem disposed to class it with the

Fig. 24.—Anemone thalictroides.

latter. It has beautiful Adiantum-like foliage, slightly glaucous, and not unlike that of Isopyrum. In April it produces umbels of white flowers each about an inch across. It appears to be rather fastidious as to soil, and a good plant of it is not often met with. Being an American woodland plant partial shade with deep peaty soil seems to suit it best, where it grows from 6 to 9 inches high. There is a double variety with smaller flowers, but it is in no way more ornamental than the normal form. It is usually propagated by division, but seed of this as well as of most of the other rarer Anemones can be had from the Erfurt seedsmen. To give a long season of growth the seed should be sown early in March in gentle heat,

the plants being grown on in boxes and planted out during June.—R. D. TAYLOR.

A NATIONAL CHRYSANTHEMUM SHOW.

I HAVE a few words in reply to Mr. Ollerhead's letter. I have already explained that London was in the first instance proposed in good faith, but before all the growers had been consulted on the matter. I have now to say, as representing a meeting of the Liverpool growers, that they do not intend to subscribe to any challenge cup or trophy to be competed for in London this year; but they will willingly subscribe to one to be contested for at Birmingham, the competition to be of a national character. The Birmingham Society will no doubt readily offer prizes worth the while of the London growers competing for besides the cup, which could be raised by subscriptions from all parts, which would be equally fair to growers north, south, east, and west. We will send our mite to Birmingham, and ask Mr. Ollerhead and his friends, also growers from other districts, to do the same.

I strongly condemn the line drawn across the country as suggested. Let each division of the nation have the honour of winning if they can do so.—W. BARDNEY.

BEES IN STRAWBERRY HOUSE.

SOME time ago one of your correspondents advised placing bees in Strawberry houses to fertilise the flowers. A fortnight ago I thought I would try the plan, so placed a hive in a house where I have about 1400 plants coming into bloom. After a week I saw that the pistils were turning black, and on examining the flowers I found that the bees had eaten all the stamens off. I watched them, and on one flower saw three bees which did not leave it till they had eaten all the stamens. They have served nearly all the flowers the same. I have at present a dozen fruit set, but the stamens of those flowers were not eaten. I thought, perhaps, that the bees had not enough to eat, so fed them with sugar and beer, but they still feed on the stamens; so, as I have many more blooms to come out, I am going to turn the bees out, or I fear the whole crop will be spoiled. Perhaps this may prove a warning to others.—SURREY GARDENER.

NOTES ON VILLA AND SUBURBAN GARDENING.

WE have again enjoyed comparatively mild weather. On some days there has been rain, yet much has been done in advancing work in the outdoor garden. Signs of spring are now apparent in many trees and shrubs. Elms are in bloom, the Hazel is now conspicuous with its long dusty catkins and minute scarlet female flowers, the Lilac is very prominent with its bursting green buds, while Clematises and Roses are much the same. Since the snow has melted the ground has been too wet for being worked with advantage, but in most gardens, however small, there is work to be found under cover until finer weather ensues.

Vines.—Most amateurs' gardens now contain a vinery—a structure which is both profitable and enjoyable. Such a structure is in many instances as valuable for preserving and growing plants as for producing Grapes, for the old notion is now about exploded that "Vines must have a house to themselves." Instances are now numerous where Grapes of excellent quality and plants useful and attractive are grown under the same roof, so that no one need hesitate to attempt the combined culture of Grapes and plants. At this season of the year Vines in the houses of amateurs, which are generally kept at a comparatively low temperature, will be swelling their buds, and should be kept well and regularly moistened. If the roots are inside the house good soakings of tepid water will be beneficial. Some cultivators make it a practice of placing a heap of fermenting manure in the house before starting the Vines. The steam arising from the fermenting material assists the buds to break, but when manure is not easily obtainable the syringe must be used freely both morning and afternoon. As soon as the buds have fairly commenced growing and before the shoots have grown very long, the rods should be removed from the horizontal position in which they have been placed, and be trained at regular distances and perfectly straight up the roof of the house. Where two shoots are seen growing from one eye rub off the weaker, and employ less moisture as the bunches come into bloom. A temperature of about 55° at night will be suitable until the bunches are well advanced for flowering, with an increase by day of 5° by fire heat, and 15° to 20° by sun heat.

Kidney Beans.—Those villa gardeners who indulge in a little forcing may now sow five or six beans in an 8 or 9-inch pot. If the plants are grown in a genial temperature the pods will be ready for gathering towards the end of April, and when vegetables out of doors will be very scarce. Osborn's Dwarf Forcing Bean is an exceedingly prolific variety, of compact habit and very early. Sow as many pots of this variety and Canadian Wonder as room can be found for; they will give a supply for some time, for by the time that Osborn's have almost ceased bearing, Canadian Wonder will be commencing to fruit. This last variety is a strong grower and very long-podded. Perhaps its greatest fault is that all its pods are ready for gathering almost at one time. The pots will require to be only about half filled with soil and the beans slightly covered. When they have grown sufficiently they are better for having fresh soil filled in around them, and a few twiggy sticks placed in the pots to support the plants. The plants delight in plenty of water while growing, for they are very liable to be injured by red spider, and water checks the increase of that insect.

Bedding plants may be increased to any extent now with the help of a moist house or a good hotbed. Such plants as Coleuses, Alternantheras, and Lobelias can be struck rapidly. When struck the points should be taken off and inserted again. Cinerarias and herbaceous Calceolarias should be grown in a cool, moist, genial atmosphere and have plenty of water, or they will become infested by green fly. The secret of growing these ornamental decorative plants is in keeping them free from insects.

Hyacinths and Tulips for blooming during March should now have made growths from 1 to 3 inches in length, the flower spikes of the Hyacinths being quite discernible. At that time a little extra heat may be afforded them if they are considered too backward. Closing the house early on bright afternoons will prove beneficial, and a little fire heat may be given during cold nights. Many varieties improve in shape and length when subjected to a moderate heat. Give them liquid manure occasionally, but never apply water sufficiently to make the soil sour. As the spikes advance in length they will require support. The neatest and at the same time the safest way is to bend some stout wire, so that while one end is inserted in the soil at the side of the pot the other will rise up from the centre, and to which the spike can be secured with a small piece of matting, one tie on the plain stem, and one or more run carefully between the bells or pips. Tulips are best supported by hazel, willow, or other small twigs, such as the straight prunings of Apples and Pears. The supports for both Hyacinths and Tulips should be left somewhat longer than the length of the flower at the time of staking, or in a few days it will be found necessary to restake the whole lot, as many of the spikes grow considerably after their flowers first expand.

Roses in pots just breaking must be syringed on all bright days to keep the green fly in check. Those advancing into bloom must be secured to neat stakes. The pruning of Roses growing out of doors should be delayed for a few weeks until all fear of severe weather is over; but plants growing in warm situations may be pruned now for producing an early supply of blooms. Roses may yet be planted, filling up blanks made by frost, but the sooner the planting is completed the better. Owing to the prolonged frost they are almost as backward for planting as at Christmas, but we are not so sanguine that those planted now will bloom as well as others that were planted much earlier, yet a living tree is preferable to a dead shrub or vacant space.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Forcing Department.—The weather has been very unfavourable to plants in frames and under handlights which, from the prolonged continuance of frost and snow, are no further advanced than they were in November. Cauliflowers are nevertheless healthy, but Lettuces look quite miserable. Air should be admitted whenever a favourable opportunity offers, removing the lights entirely when the sun is powerful, replacing them only in case of cold rains, snow, or frost. The plants will be invigorated by stirring the soil about them lightly and sprinkling with dry wood ashes. Air must be given to early Potatoes, Radishes, Carrots, &c., in pits or frames, applying linings of fresh sweetened dung as may be necessary to promote steady growth. Seakale will now advance rapidly with only a moderate amount of heat. If forced on the ground by fermenting materials the pots, as the Kale is cut, should be placed over fresh crowns and covered with fermenting material as before. A portion of the stools in the open ground may be covered with pots and any kind of litter that will exclude light and afford protection from frost. This will secure a late supply of blanched Kale, which will be very acceptable, as spring vegetables do not promise to be over-abundant, and certainly they will be late. If fermenting materials are not forthcoming another batch of Seakale must be introduced to the Mushroom house or similar place, so as to maintain an unbroken supply; for though this vegetable is not so much esteemed as Asparagus, it nevertheless is generally acceptable. Where permanent beds of Asparagus are not forced another lot of roots will be necessary to maintain the supply, planting them in frames placed over a bed of fermenting materials. Rhubarb introduce to the Mushroom house so as to keep up a supply, or more roots should be covered with pots and surrounded with littery manure. Any pits at command sow

with French Beans, giving preference to sowing in beds of rich soil to sowing in pots, as the plants yield more abundantly and continuously. Frequent sowings of Mustard and Cress will be necessary, and fresh roots of Mint and Tarragon must be introduced to heat as the demand requires. Chicory roots should be placed in the Mushroom house or other dark place where there is gentle heat. Endive being about over, the blanched leaves of the Chicory are the more acceptable.

FRUIT HOUSES.

Figs.—The earliest-forced Figs in pots will swell their fruit best by having a top-dressing of rich material applied to the surface of the pots, and if a layer of turves has been placed around the rims of the pots, as before advised, space is afforded for the top-dressings. Do not give heavy dressings of rich compost all at once, but apply it little and often; apply also liquid manure, 1 oz. of guano to a gallon of water, giving it in such quantity as to pass through the pots. Driblets do no good. Maintain a genial atmosphere by syringing twice a day when the weather is bright, but avoid keeping the foliage constantly wet, as would be the case by syringing the trees vigorously in dull weather. Damp the paths, walls, and bed, keeping the evaporation troughs filled with guano water, and to check red spider paint the pipes with sulphur. Admit a little air at 70°, increasing it with the increase of solar heat up to 85°, which ought not to be exceeded, closing at 80°. The night temperature may still range from 60° to 65°. 55° in the morning in very severe weather is more safe than the higher temperature, advancing 10° by day. Avoid crowding, stopping or tying the shoots as growth advances, as the fruit to have flavour and colour must when ripening have full exposure to light combined with a circulation of dry warm air. Trees planted out and started early in the year will require disbudding and stopping, removing all the overcrowded shoots, stopping those intended to form well-developed spurs for the second crop, the leading shoots where there is space being allowed to extend, as they invariably afford the finest fruit. Water the border freely with liquid manure at 80°, taking care not to apply it too strong, and mulch with rich compost, which will attract the roots to the surface. Encourage also the emission of roots from the stem by placing fibrous pieces of turf and partially decayed manure in contact with it; and by extending the material outwards a quantity of feeders will be secured, which, if supplied with warm liquid manure, will greatly assist the maturing of the fruit.

Cherry House.—Ventilation must be unremittingly attended to. A free circulation of air should pass through the house whenever the temperature exceeds 50°, the amount of air to be regulated by the conditions of the external atmosphere. Employ fire heat only to prevent the temperature falling below 50° in the day, and to maintain a night temperature of 40°. Attend to fertilising the blossoms. Watch closely for the appearance of aphis, especially for green aphis on Plum trees, if there be any in the house, as if the insects are allowed to become established they will be difficult to kill. Grubs infest the Cherry under glass; one kind of grub rolls itself up in the leaves, and can be eradicated by squeezing, but the other is the greater pest, and will be found encased on the under side of the leaves, giving them the appearance of being scalded; from the leaves it makes its way to the Cherries, perforating and destroying them. The only means of riddance is to look over the trees occasionally and destroy the grubs.

Cucumbers.—With increased light and solar heat evaporation is correspondingly increased, necessitating a greater supply of atmospheric moisture. The evaporation troughs should be kept filled with liquid manure, damping the house so as to maintain a genial atmosphere, and syringing the plants lightly during bright afternoons. A night temperature of 65° is sufficient, allowing 5° more when the external air is mild, 60° being the minimum in the morning when the weather is severe. Liquid manure may be applied once or twice a week. Do not allow the fruits to hang too long, or they may weaken the plants; besides, they keep fresh for several days with their stalks inserted in saucers of water. Thin the fruit well out, especially on plants just coming into bearing, stopping the shoots at one joint beyond the fruit, removing superfluous growths and bad leaves as they appear, as well as male blossoms. The weather continues very unfavourable for early forcing in pits and frames heated with fermenting materials, the temperature being difficult to keep up to a point calculated to maintain steady progressive growth, a close atmosphere resulting in a superabundance of moisture, not unfrequently causing the loss of the plants. When the moisture cannot be dispelled by admitting air much may be done by sprinkling lime or soot round the plants, those substances having a great affinity for moisture. Continue to prepare material for making fresh beds for linings, and sow seed as successional plants are required.

Melons.—We have little to add to our remarks in last calendar except that the weather being so unfavourable, the plants shifted into 5-inch pots may not yet be planted out, and if so they should be planted before they become root-bound. Later-sown plants should be potted off when they show the seed leaves, employing moist warm soil. The plants from the sowing made early in February will soon be ready for planting out. Make up the bed for them, and make also a successional sowing. Those who are growing Melons in dung-heated frames should make a successional sowing every fortnight or three weeks until May, making fresh beds at similar intervals to receive the plants, so as to maintain an uninterrupted supply of fruit. Maintain a night temperature of 65° to 70°, 5° less if the weather be cold, 70° to 75° by day, admitting a little air at 75°, allowing the temperature to rise to 85° with increased ventilation, closing at 80° or 85°, sprinkling at the time every available surface; and if the temperature rise to 85° or 90° so much the better. Keep the bottom heat at from 75° to 80°.

FLOWER GARDEN.

As soon as a general thaw occurs after the long-continued frost work in the outdoor department will tax to the utmost the resources of those in charge. The first consideration will be to attend to plants which have been displaced by the frost so as to make them secure against injury by March winds. Plants intended for the spring display, such as Arabises, Alyssums, Iberises, Myosotis, Pansies, Silenes, Violas, &c., will require to be secured in their places; and if a surfacing be given of cocoa refuse it will impart a neat appearance to the beds. Crocuses, Scillas, Tulips, Narcissus, Hyacinths, and other bulbs are appearing above ground; and as snails are troublesome sprinklings of soot and fine ashes are very useful. Border Auriculas and Polyanthuses should have a similar dressing, and an application of fresh loam and leaf soil will be beneficial. Beds of Carnations, Cloves, Picotees and Pinks should have the soil firmed about them, sprinkling dry soot between the plants, top-dressing the beds with rich soil. A sowing of hardy annuals should be made in small pots, placing them in gentle bottom heat until the seedlings appear; then remove them to a cold frame kept rather close for a time and protected from frost, afterwards frequently ventilating, gradually inuring the plants to bear full exposure. They are fine for mixed borders in early summer. Do not omit Mignonette and Sweet Peas, nor Cornflower (Centaurea Cyanus), and Sweet Sultan, which are valuable for cutting. The dwarf double Scabious is fine for cut flowers. Asters and Ten-week Stocks for early flowering may now be sown, also striped French Marigold and Phlox Drummondi vars. East Lothian or Intermediate Stocks should be shifted into larger pots, and the most advanced plants may be draughted to the greenhouse. Hollyhocks remove into larger pots, keeping choice sorts in cold frames freely ventilated. Dahlias placed in heat will afford cuttings plentifully, taking them off with a heel when about 3 inches long, insert them singly in small pots plunged in bottom heat. After being well rooted they should be kept near the glass and grown on slowly in a temperature of about 50°. The dwarf varieties make splendid beds, and are not nearly so frequently seen as they ought to be. Alba Multiflora, Mont Blanc, and Alba Floribunda nana, whites; Leah, Aurora, and Drap d'Or, yellows; Little Wonder, Prince Frederick William, and Prince Arthur, scarlet and crimson—are good sorts. Salter's Scarlet Bedder, Paragon, and Lutea have single flowers which are valuable for cutting. The bouquet varieties also are very useful in late summer when flowers are not very plentiful. Triumph, scarlet; Little Love, rosy purple; Red Gauntlet, crimson; White Aster, Dove, white tipped rosy-lilac; Emotion, crimson, tipped white; Little Dear, blush white, striped and tipped rose; Burning Coal, yellow tipped scarlet, are a few good sorts. Roots introduced to gentle heat will soon afford a number of cuttings. Tuberous-rooted Begonias may now be potted singly in loam with a little leaf soil and a sprinkling of sand, placing them in a frame with a gentle bottom heat, the object being to have them strong and well hardened by planting-out time; but anything like coddling should be avoided, as beyond a little warmth at starting they do not require more heat than Pelargoniums, which they rival in beauty.

PLANT HOUSES.

Forcing House.—The plants as they come into flower will be draughted to the conservatory, which during this and next month will be as gay as at any time during the year with forced plants and bulbs, Azaleas, and other spring-flowering plants, along with late Camellias, judiciously interspersed with foliage plants. Fresh introductions will need to be made to the forcing pit, and if the plants have been placed in a house with a temperature of 45° by artificial means for about three weeks, they will be in better condition for placing in an increased temperature—viz., 55° at night. At no time are flowers, especially white, more in request than at Easter. Camellias are perhaps the most highly prized, than which none are finer than Fimbriata, Alba plena, Candidissima, and Mathotiana alba, which will probably need retarding, though in a cool house they flower about the time wanted. Next to Camellias is Eucharis amazonica, followed by Gardenias, Roses, and Lily of the Valley, Clematis Lucie Lemoine being fine. Eucharises that completed their growth in the autumn and have been kept cool will, if placed in bottom heat of 80° to 85°, watering them freely, throw up quickly; and Gardenias with buds in a forward state will swell them freely in a moist warm atmosphere. Lily of the Valley placed in the temperature above indicated will flower by the time wanted. Roses require more time, and so does Hoteia japonica. Then there are white Lilacs, Deutzia gracilis, Pinks, and other flowers that may be pressed into service. Richardias to flower freely in winter require a temperature of 55°, and abundant supplies of weak liquid manure. Achimenes started at

the commencement of the year will be ready for making up into the pots, pans, or baskets in which they are intended to flower. Do not crowd them too closely together; 3 inches apart is a proper distance, and when 4 inches of growth is made the shoots may be stopped in order to secure dwarf bushy plants well furnished to the base. Gloxinias started early shift into larger pots, placing near the glass to keep them sturdy in both leaf and flower. Nepenthes look over, and if they require larger pots afford them, being careful of the roots, which are of the most delicate description. Sarracenias may also now be repotted, removing all the old soil so far as practicable without disrooting. Fibrous peat and chopped sphagnum in equal parts, with one-sixth of broken pots and a little silver sand, is the best material to grow them in, good drainage being provided. Water is required for these plants every day during the season of growth. Nepenthes require sprinkling overhead early in the afternoon, but do not syringe Sarracenias overhead, it only makes them soft. Ardisia crenulata and others of the genus are amongst the finest of berried plants. Seed may now be sown in pans in sandy peat lightly covered with sand, placing the pans in brisk heat, and when the seedlings are large enough to be handled pot them singly in small pots. Last year's seedlings shift into larger pots, and keep them close to the glass; 5 or 6-inch pots are large enough. Insert cuttings of Solanum Capsicastrum, which strike freely; when rooted pot them off, and after the plants are established place them in light airy pits where they can make steady progress. Cuttings for early flowering of Euphorbia jacquiniæflora should now be inserted, choosing the young growths about 6 inches long taken off with a heel. Old plants may be cut down after flowering to within 4 to 6 inches of the pots and kept close but not wet, and when they have made a little fresh g owth shake the plants out and repot them. Epiphyllums which have ceased flowering and are beginning to grow should be potted, but they do not like overmuch pot room, grafted plants being no exception. If Chrysanthemum cuttings were not inserted in November or December, or if the stock be insufficient, no time should be lost in striking more cuttings; stubby suckers of about 3 inches in length inserted singly in small pots and placed in a frame in gentle bottom heat will root quickly, when they should be hardened off and placed in a cold frame. Those wintered in frames should have air abundantly, shifting them into 5-inch pots before they become very much root-bound. Insert cuttings of double Petunias, which strike freely in gentle warmth, and when well grown are valuable for the greenhouse in summer. Linum trigynum is one of the most useful of winter-flowering plants. Cuttings taken off with a heel, inserted in sandy soil and covered with a bellglass, root quickly in gentle heat.

Orchids.—Calanthe vestita as growth appears should be shaken out of the old soil and have the dead roots cut away. Repot the bulbs in a compost of three parts lumpy peat, one of turfy loam, and one of old dry cow dung with just a dash of sand, the whole being well mixed together. Place a couple of inches of crocks for drainage, then a layer of sphagnum, filling with compost to within an inch of the rim, on which place the bulbs, working in about half an inch of soil between them, keeping them just damp until they have fairly begun growing, then water freely, never allowing them to become dry until the growth is completed. Calanthe Veitchii requires the same treatment. Anguloas repot in good fibrous peat, half filling the pots with potsherds, then a layer of sphagnum, filling up with peat and potsherds, keeping the bulbs a little raised above the top of the pots. The above require the temperature of the East India house when growing. A gradual increase of temperature and moisture in proportion will be necessary as the days lengthen. Avoid sudden fluctuations of either, a change from drought to a saturated atmosphere often producing disease. The spot which is sometimes seen on the foliage is caused by too low a temperature when the plants are overcharged with moisture. The floors and benches should be damped the first thing in the morning, also the pots, baskets, and blocks should be freely syringed, keeping the evaporation troughs filled with water, damping the floor again in the afternoons and evenings of fine days. Plants growing freely will require good supplies of water at the roots. East Indian house 65° by night, 75° by day, rising 5° to 10° with sun heat; Mexican house 60° to 70°; and cool Orchids 50° to 65°.

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (*Subscriber*).—Canon Hole's "Book about Roses" will suit you. (Blackwood & Son.) The "Garden Manual" published at this office, post free 1*s.* 9*d.*, contains much information on the culture of fruit and vegetables.

PRIMROSE—"*G. G.*" is desirous to have the address of "D. F. J. K.," who wrote on the Primrose in our pages some time ago.

HYACINTHS (*Disputant*).—They are not natives of Holland. The term Dutch Hyacinth, while being sufficiently expressive, is not strictly correct. Oriental Hyacinth is a more accurate appellation, the plant being a native of the Levant. Hyacinths were first cultivated as garden flowers in Holland, and from thence were introduced into this country, but at what particular date is doubtful. We know that Gerarde cultivated the Hyacinth in 1596, and in 1629 Parkinson enumerated eight varieties.

TABLE FOR SOWING SEEDS (*N. J. W. H.*).—We have seen similar tables published in seed catalogues. The example submitted would only be of use to amateurs in your own district; and even in their case the information conveyed by good garden calendars is of more service when read in conjunction with the observance of advancing crops in the garden.

MOROCCO ARTICHOKES (*Gibraltar*).—The species you inquire about is Cynara humilis. It abounds on the borders of fields and roadsides where the soil is heavy. Large quantities are sold at Tangiers.

PROTECTING APRICOTS (*A. M. B.*).—Place the netting over the trees as soon as the buds swell sufficiently for the colour being seen, and before the blossoms are expanded. Such netting as you employ should not be removed until the surplus fruit is large enough to be gathered for tarts. You should apply a double, or if possible a greater, thickness of the herring nets.

CAPE GOOSEBERRY (*W. A. H.*).—The Cape Gooseberry is Physalis edulis. Almost any seedsman can supply you with seed, which may be sown under glass, the plants being potted, grown near the glass, subsequently hardened off, and then planted in good soil in an open position in the garden; or they may be grown in pots in a cool frame or light greenhouse.

GRANULATED BONES (*F. J.*).—They are both suitable for sowing on lawns or pastures, rolling them in when the ground is moist, and for mixing with the soil for Pelargoniums and similar plants. For potting purposes we should crush them, as they would be more quick in their action than if employed in their rough state; this, however, only applies to plants that have only to remain one year in their pots; for fruit trees in pots we should not crush them.

PROPAGATING LEUCOPHYTON BROWNII (*W. Long*).—You will scarcely be able to raise a stock of young plants this spring that will be sufficiently strong to be useful for the ensuing season's bedding. It requires the same cool treatment as Calceolarias, as you will see from an article in another column.

GUERNSEY AND JACOBÆA LILIES (*A Lady Subscriber*).—The Guernsey and Belladonna Lilies flower in September and October, and the Jacobæa Lily in April or May. They cannot be had in flower at any other time by any special treatment, nor is such change of season desirable, as they come in at a time when flowers are scarce. The Guernsey and Belladonna Lilies should be potted early in September, and the Jacobæa in February, but after the first year they should not be disturbed. They succeed in light airy positions in the greenhouse. They are quite hardy in well-drained soil planted 6 inches deep in warm borders. Vallota purpurea for flowering in September should be grown in quantity, the African Lily (Agapanthus) for flowering in early summer, and Richardia æthiopica for flowering in spring. Amaryllis of the vittata section succeed in a warm greenhouse.

PIPING FOR VINERY (*E. Y.*).—You do not state whether forcing is intended or not. If the Vines are not to be started before March two rows of 4-inch pipes—*i.e.*, a flow and return along the front and one end of the house, will be sufficient; but if you intend starting the Vines in December double the quantity of piping will be necessary. We should have the pipes about 3 feet from the front wall.

GLAZING WITHOUT PUTTY (*Idem*).—We only advise glazing without putty when it is done upon some approved principle, otherwise bed the glass in putty and secure the squares with tacks, painting well over the joints at the rafters or sashbars.

DECAYED BEECH LEAVES (*A Young Gardener*).—They are the best next to Oak leaves, both as forming fermenting material for affording bottom heat, and when reduced to soil, for potting purposes. We have used Beech leaves for many years, not only without experiencing any injurious effects, but, on the contrary, with the best results.

ERICA GRACILIS AFTER FLOWERING (*Idem*).—Remove the flowers, and merely cut back any irregularities of growth; then shift the plants into pots a size larger, employing sandy peat, pressing it very firmly, and draining the pots efficiently. There is no reason why the plants should not increase in size annually, and flower as freely in large as in small specimens; indeed, we have plants, perfect half balls, a yard and more high and through.

COVERING PIPES IN MELON PITS (*Amateur, Wisbech*).—The pipes in the bed may be covered with stone flags, slate slabs, or wood battens, but the two first are most suitable; or the pipes may be surrounded and covered with rubble to a depth of 6 inches, having it rough at the bottom and finer at the top, over which place a layer of sods, grass side downwards. If stone or slate are used the joints must be left open to allow the superfluous water to pass through.

PIPE CHAMBER IN CUCUMBER HOUSE (*A Constant Subscriber*).—To form a chamber the supports for the slabs must be brought up from the floor, as the "set off" will not be sufficient to carry the slabs, which may be either of stone or slate. They should be about 6 inches above the hot-water pipes, and above the slabs should be a space of about 12 inches for compost for the plants. The joints of the slabs should be left open, and if they do not fit very closely all the better. Deal slabs creosoted would not, we fear, answer, as the creosote is injurious to the roots of the plants. Rubble placed 2 or 3 inches deep over the slabs is an advantage, securing thorough drainage; but in that case the depth of the bed must be 15 inches, which will allow of 3 inches for drainage and 12 inches for soil. It will answer to cover the pipes with rubble surfaced with coarse "beach," placing over that a layer of sods grass side downwards.

STEPHANOTIS NOT FLOWERING (*M. P. D.*).—Afford the plants more light by training the shoots thinly about 6 inches from the glass. We should thin out the growths very freely now, and if those retained are well ripened the shoots proceeding from them will flower freely. Flowers all the year round can only be secured by relays of plants. The plant in the pot should have the shoots thinned now, and the young growths trained to strings near the glass, and when they are well advanced for flowering secure them to the

tuellia. What is wanted is better ripened wood, and then the plants will flower freely, to secure which more light and less moisture are necessary. There is, however, a shy-flowering variety which grows exuberantly and produces very large foliage. If you happen to have that variety you will find a difficulty in obtaining a profusion of flowers.

HARDY WHITE LILIUMS FOR FLOWERING IN AUGUST AND SEPTEMBER (*A. G. J.*).—Lilium lancifolium or speciosum album, and L. speciosum corymbiflorum album. All the varieties of L. lancifolium are worth growing—indeed are indispensable for flowering at the time named. If your situation is cold a warm position will be necessary for the plants. They are fine for greenhouse culture.

RELAYING BOX EDGINGS (*J. B.*).—Take up the old edging, slipping off the side growths with roots to each part, and plant them so that the box will be about 3 inches above ground. Now is a good time to do it. The ground should be made very firm and level before the trenches are dug, or you will have irregular lines, caused by the settling of the soil.

PLANTS FOR SHADY BORDER (*Idem*).—*Annuals:* Alyssum maritimum, Bechecholtzia crocea, Lupinus nanus, Tom Thumb Nasturtium, Silene pendula, and Candytuft. *Perennials*: Helleborus niger maximus, Trollius europæus, Spiræa japonica, Myosotis dissitiflora, Anemone Honorine Jobert, and Iris germanica.

SCHIZOSTYLIS COCCINEA (*J. B. P.*).—Assuming that is the name of the plant (but it is impossible to determine from such a withered scrap), it succeeds very well in good loam in an open yet sheltered situation, being copiously supplied with water in dry weather. It does not flower until late autumn. We divide the plants in April, and plant them in the open ground 18 inches to 2 feet apart, watering them freely in dry weather, and mulching between the plants with short manure, lifting and potting them in October, and they flower throughout the winter in a light greenhouse.

PEACH HOUSE (*R. T.*).—A span-roofed house is the most suitable with the ends north and south. As you do not intend to heat the house we advise you not to grow the very late Peaches, but to confine yourself to such as Hales' Early, Dr. Hogg, Royal George, Noblesse, Barrington, and Late Admirable. An Early Beatrice or Louise may be grown for their extreme earliness. Jargonelle is the best early Pear, succeeding admirably against an east wall. Marie Louise is one of the best for midseason use, and Bergamotte Esperen is a valuable late variety.

RED ROSES FOR GREENHOUSE (*Idem*).—Try the Tea-scented Duchess of Edinburgh and Cheshunt Hybrid; the latter is not perhaps so deep in colour as you desire, but it is very good.

DEUTZIA GRACILIS FLOWERS SHRIVELLING (*A. W.*).—Judging from the sprays sent us we should think the wood was very unripe, as the flowers are small and indifferently developed; or the shrivelling may have been caused by the plants having been brought into flower in a high temperature and at a distance from the glass, in which case the flowers are but of short duration when the plants are removed to a cold and dry atmosphere.

TODEA SUPERBA NOT THRIVING (*Idem*).—It does not succeed in a high temperature, but thrives admirably in a cool house, or one from which frost is only just excluded. The plant should be sprinkled lightly overhead two or three times a day, and have shade from the sun, the atmosphere being kept moderately close and moist. It succeeds well in a cold frame from April to October.

PLANTS FOR COOL CONSERVATORY (*C. H. S.*).—Ferns would be suitable for planting in the rockwork. Camellias, the finest ornaments of our greenhouses in winter, we should grow in pots, supplemented by Azalea indica vars. Bulbs of various kinds would give a fine display in spring along with such plants as Deutzia gracilis, Dielytra spectabilis, Hoteia japonica, Lily of the Valley, Tea-scented and Hybrid Perpetual Roses, Cinerarias, Cyclamens, and Primulas grown in quantity. Show Pelargoniums may be grown for flowering in early summer; also Cytisus, Acacias, and similar plants that may be placed outdoors in summer after the house becomes too warm for them and too much shaded by the Vines for the health of the plants.

SPAWNING MUSHROOM BED (*A Lady*).—Holes should be made in the bed so that when the spawn is inserted the pieces will be covered about an inch with the same material as the bed, firming the material well about the spawn and also over it.

SHALLOTS (*Idem*).—They will not take the least harm, being perfectly hardy; but it will be necessary after the ground is clear of the snow and frost to go over them and press the soil about any that have been upheaved by the frost, securing them in their former positions.

PLANTS FOR LINES IN BORDER (*Idem*).—African Marigolds are not suitable for a line in a ribbon border, there is no contrast between them and yellow Calceolarias. We should have the Lobelia in place of the Marigolds, and Golden Feather Pyrethrum in place of the Lobelia as an edging.

PLANTING ASPARAGUS BEDS (*A Lady*).—We should throw the ground into beds 4 feet wide, forming alleys about 18 inches wide and 6 inches deep. Plant three rows of plants in each bed, the outside rows 9 inches from the side of the bed, and the other in the centre, the plants being 1 foot asunder in the rows, and their crowns about 1½ to 2 inches beneath the surface. Manure as well as sand should be liberally added to the soil. The plants should be planted when the growths are about an inch long. One or at most two-year-old plants are suitable for planting.

WATERING VINES WITH LIQUID MANURE (*Idem*).—The Vines being old and weak they would be benefited by the application of liquid manure after they are in free growth, applying it at a temperature of 80° to 85°, the liquid from the stable being diluted with six times the quantity of water. It is best applied in hot weather when the Vines are at their maximum growth, and until the Grapes change colour.

TRANSPLANTING LETTUCES (*Idem*).—Keep the plants in the cold frame with free ventilation in mild weather, and if very thick thin them to about 6 inches apart, planting the thinnings in rich soil on a warm border after the weather becomes more settled. You will gain nothing by placing them in boxes in the greenhouse, nor by sowing seeds there; but a sowing should be made upon a warm border to succeed those in the frame.

DOUBLE YELLOW ROSE (*E. A. H.*).—We are unable to give you the information you require; but notes on this Rose will shortly be published.

SAVING PRIMULA SINENSIS SEED (*Paddle*).—Allow only one or at most two trusses of bloom to each plant, and reserve the finest pips for seed on each truss, cutting the others away, and to insure fertile seeds the flowers should be fertilised with pollen from a desirable variety. The plants should be kept near the glass in a light, airy, and moderately warm greenhouse. Let the pods remain on the plants until they become brown, when they must be gathered, or the capsules will open and the seeds be shed. The seeds when ripe are dark brown.

SOWING PRIMULA JAPONICA SEED (*Idem.*)—Sow the seeds in pots or pans filled to within a quarter of an inch of the rims with turfy loam, with a third of leaf mould added and a sixth of sand, surfacing with an eighth of an inch of fine soil, on which to sow the seed, covering it lightly with very fine soil. Place the pots in a gently heated frame, keeping the soil moist and shaded until the seedlings appear, then keep them close to the glass, hardening off and removing them to a cold frame. The seeds will vegetate slowly but surely in a cold frame. When the seed is sown as soon as ripe it vegetates freely, but if it is kept out of the ground for any length of time it germinates slowly, sometimes not until the second year.

COCOA FIBRE REFUSE (*Idem*).—It is not of any great value as a manure, but is useful for lightening retentive soil, and as a mulch to shallow soil it acts beneficially. It is chiefly valuable as a plunging material and for mixing with soil for cuttings, &c.

PRUNING TACSONIA (*Idem*).—It will require no more pruning than thinning out the shoots when too crowded, and shortening back the growths so as to induce fresh shoots when desired. If not well furnished at the base cut the plant well back, otherwise prune sparingly.

TRELLIS FOR CLEMATISES (*F. J.*).—For the bed you name we should have the trellis of the dome shape, and about 2 feet high in the centre. Only a few wires will be necessary, as if you have a close fixed trellis you will not be able to apply manure to the bed.

SPIRÆA LEAVES WITHERED (*Inquirer*).—The shrivelling of the foliage is no doubt the result of the prolonged dull weather. Grow the plants as steadily as possible, and with increasing light the foliage produced will be sufficiently strong to resist sudden gleams of sunshine, especially if the plants are copiously supplied with water. The foliage is very liable to receive injury by fumigation.

GRAFTING WAX (*T. V.*).—Take of Burgundy pitch 1 lb., black pitch 4 ozs. yellow wax 2 ozs., rosin 2 ozs., and mutton suet 2 drachms; melt the whole in an iron pot over the fire, and apply when warm to the wounds of the trees, taking care that it is not so hot as to injure the tissue of the bark.

CARPET BEDDING PLANTS (*Sigma*).—The distance for planting depends entirely on the size of the plants. You cannot adopt a better rule than planting so that the foliage of one plant is not more than 1 inch from that of the others. Close planting is essential to success.

GARDENER LEAVING (*Young Gardener's Difficulties*).—You are not entitled to any time beyond the month's notice to quit which you have given. Ask your master when he would like you to go, and to permit you to apply for any new situation you may hear of.

NAMES OF FRUITS (*W. W. Blest*).—It is Hunt's Green Newtown Pippin. (*W. S.*).—Verulam.

NAMES OF PLANTS (*H. S.*).—The Primula is P. denticulata, the Saxifraga probably S. granulata. (*J. C.*).—No. 2 Begonia hydrocotylifolia; 3, Epiphyllum sp., but we cannot tell which without the flower; 4, Erica carnea alba; 5, Erica carnea; 6, Alternanthera, too much withered for identification. (*W. S.*).—It appears to be a Cissus, but we cannot tell without the flower. (*A Young Gardener*).—The specimen, though much crushed, appears to be Thibaudia acuminata, a beautiful greenhouse shrub introduced by the Messrs. Veitch from the Andes of Ecuador, and sent out by that firm in 1869. (*E. S. W.*).—Azalea phœnicia, a species introduced from China in 1824. (*H. P.*)—1, Habrothamnus elegans; 2, Alonsoa, species not determinable without flowers, 3, Selaginella stolonifera; 4, Specimen insufficient.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

CULTIVATION OF BEANS.

HAVING on the 5th of September, 1878, page 195 of this Journal, described the cultivation of winter beans, we now propose to refer only to the cultivation of spring beans, which not only require different cultivation in many respects, but are grown chiefly upon a different soil and in a different climate. We find that although winter beans are often cultivated with success upon a variety of soils in the eastern and south-eastern districts, still it is important to notice that spring beans are at all times a more or less speculative crop, even upon the best heavy soils in the western and north-western districts of the kingdom, and still more hazardous where the land is dry and light, and where the rainfall is uncertain and deficient. In making these introductory remarks we desire to show that the uncertainty of the yield of spring beans upon the home farm under certain circumstances must be a matter for serious consideration before it is decided to cultivate them. We have strong heavy soils in some districts where it has been the practice from a remote period to sow beans alternately with wheat as a rule, and the farm leases are so drawn as to permit the occupiers to crop the land in that way for which privilege the tenant pays an extra rent in consideration of being allowed to take two sale crops continuously; we have also instances in various parts of the kingdom where this rotation of cropping is attended with success, particularly upon heavy soils, which are not so much given to couch and weeds

as the lighter land. In such a course of cropping we prefer the spring beans to the winter variety, because after the wheat crop is harvested there is plenty of time to cultivate and autumn-till the land, and lay it up for the winter in readiness for sowing early in the spring. It is advisable to lay out the dung in the autumn and plough it in upon all except wet and undrained land, where it is found that the beans succeed better than when fresh dung is ploughed in just before drilling.

The choice of seed and sort is important, and it is also of consequence that seed should be changed every year. We had on the eve of harvest last year a very decided illustration of this matter, for on looking over a farm in a southern county we met with a field of beans which had been seeded in the spring, part of the field being drilled with seed grown on the farm, the remainder with beans brought from a distant market. The portion of the field sown with the latter was as good a crop as could be desired; the part of the field sown with home-grown seed was much blighted, and no more than half a crop. We had often seen such a result in cereals, but not in a pulse crop until this instance came under notice.

Upon strong fertile soils we may venture to drill spring beans by themselves, the best distance being 24 to 27 inches apart between the rows. This distance will give a fair chance for horse-hoeing as well as hand-hoeing, and also afford plenty of room for the surface roots of the plants to permeate the soil; it also gives a good opportunity for the sun and air to have its full influence and effect at blooming time. With respect to the varieties to be planted upon the above-named soil we consider that the common horse bean and the "tick" varieties are the two best; about 2½ bushels per acre will be enough seed when drilled at 2 feet apart. The old style of planting by the dibble has nearly become obsolete, most persons preferring the drill system; and when the land is free to harrow, as it should be, the drill applies the seed with great regularity, and, what is equally advantageous, at a regular depth, which should never be less than 4 inches. We have sometimes seen beans planted under the furrow by hand-dropping, or, which is better, with a small drill made to fit on to the heel of the plough; these drills are very simple and comparatively inexpensive, costing about 35s. We have seen the beans placed under furrow in very heavy land, yet the plants have come out well. This is a good plan where rooks annoy, because they cannot reach the bean itself, and will not take the trouble to pick off the sprout when the corn is out of their reach.

The cultivation or growth of beans has fallen off greatly within the past five years, the decrease being for England 115,000 acres; in Ireland it is in a still greater proportion. Our agricultural statistical returns of cropping show this result, and it practically confirms our own opinion as to the precarious nature of the bean crop. We are now referring entirely to the cultivation of beans upon strong and heavy soils as forming the first part of our subject, but intend to remark upon the growth of spring beans upon dry and loamy land.

The quantity of seed should be regulated to some extent by certain circumstances connected with soil and climate; for instance, even on strong good bean land it often happens that the crop is much liable to blight in certain situations, and this is particularly the case near the seacoast, especially in the eastern districts of the kingdom. If we refer to what may be considered an average crop for a number of years upon good land well cultivated we should put it at 32 bushels per acre; we have, however, reliable evidence of very large crops in some cases. On a farm of our own ten quarters per acre were grown on the average of a field, but a single acre measured off and thrashed separately produced fourteen quarters. This was upon a strong soil, which when fairly cultivated never required any manure, and as a matter of fact it never had manure applied for over forty years; it was, however, judiciously cropped as regards rotation, and kept perfectly clean by a long fallow when required. These results naturally made us inquisitive as to the analysis of this clay land, and it turned out to be extremely rich in potash with other constituents, which laid the foundation for extraordinary crops, the land being always, however, kept fresh in chalk.

We have found it a safe practice, even upon the best strong land, to have peas or tares mixed with the beans, so that in case the beans are attacked with the black aphides and seriously damaged thereby there is still another crop left to make up any deficiency, because we have never found when the beans were attacked that the peas were attacked also, as it is very rare that the green louse which attacks the peas prevails in the same weather which favours the black aphides. Those who may wish to understand the habits and propagation of these insects will find an excellent article upon the subject by Mr. Curtis in vol. vii., part 2, page 404, of the Journal of the Royal Agricultural Society of England. We have grown and seen this double culture of pulse crop carried out with great success; in fact, it is the only means upon heavy land of insuring against the failure of the beans. The method of sowing is not more expensive in seed, for when peas or tares are added a less quantity of beans is necessary, and the beans too should be drilled at a wider distance (36 inches is the best); there will then be equal facility for horse and hand-hoeing the crop. No sooner is the hoeing completed than the peas grow rapidly and shake hands across the space, and entirely overpower the weeds if they make any attempt to grow. The peas we use are either the large or small maple, commonly called the partridge pea. The vetches grown are the large Scotch gore summer variety. We have had these double crops so thick and strong at blooming time that it was quite impossible to walk through them. At harvest they are cut into bundles and tied with the peas or vetch haulm. There is some little difficulty in drilling the small pulse with beans; we, however, fill in the seed a little at a time, and often taking notice which seed runs out fastest, adding the proportion of seeds accordingly.

It is extremely important whenever the land has not been manured in the autumn that it should be dressed with Peruvian guano, about 2 or 3 cwt. per acre, in the spring and ploughed in. When land is ploughed in the spring the beans always grow better, and the land works freer for the drilling than attempting to drill upon the stale furrow. We object to drill guano with either of the pulse crops, for it often kills the first germ of the plant, and the great advantage of artificial manures over farm-yard dung is that it saves time, for whilst laying out dung the land may be ploughed and drilled after sowing guano, &c.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—So much time having been lost as regards tillage on the land, owing to a period of eight weeks' frost, with two intervals of thaw for a few days only, that the land generally in course for every crop is very much behind in its preparation for receiving the seed. We must therefore be prepared for one of the severest calls upon the horse labour of the home farm experienced for a great number of years: it will therefore require the greatest judgment, intelligence, and foresight on the part of the manager to so arrange the horse labour of the farm that the most shall be made of it. Rolling of clover seeds and pastures will be continued on any occasion when the slightest hindrance occurs to tillage work. We have been lately engaged in threshing by steam barley, oats, and peas. The barley and oats yielded badly, but the peas very well. The price at which they are selling is, however, so low that it is impossible they can be grown at a profit in this country under ordinary circumstances upon any soil. It is therefore extremely desirable that a judicious mode of cropping on the home farm should be adopted, and it will require all the ingenuity of the conductor to so arrange his rotation of cropping as to cultivate only those crops which seem to promise a fair return; and as soon as we contemplate the matter it seems difficult to say how cereals or pulse crops can be produced in this country at a profit whilst such flooding importations are admitted from all parts of the world. Seeing, however, that England is committed to a commercial instead of an agricultural policy, it is a fortunate circumstance for the home farmer that, unlike many tenant farmers, he is not bound to any rotation of cropping. It is only a question for him to consider the best means of taking either double crops or a quick succession of valuable crops. We advise that where winter oats have not been sown that the early white Canadian oats be sown on the first opportunity. On reference we find that in 1862 we grew sixty-eight bushels per acre, weight 46 lbs. per bushel. We also grow on the same land capital white turnips after by ploughing and sowing between the stooks as fast as the oats were cut; the oats were carted and threshed in the field, sold and delivered before the general harvest began. Where rye has not been sown with the view of cutting for a crop of straw only as soon as it comes into ear, April wheat may now be sown and cut for straw, in the same way to be followed by mangolds. On home farms with a small portion only of arable land, the straw will be very valuable, and the crop of mangolds, Swedes, or turnips will be as nearly insured as they ever can be, for we always find that root crops take better when seeded after stubble than after a fallow. Then, again, trifolium can be sown now, and in eleven or twelve weeks the crop can be removed for soiling, the land planted with cabbage of early sorts, and an abundant crop obtained, provided that the land is maintained in such condition as regards cleanliness and manure as to be able to produce them: or the trifolium may be followed by turnips or a crop of summer vetches mixed with oats, either of which will produce a good crop of food and fodder for cattle in ordinary seasons before winter sets in, particularly in the early districts and warm soils and climate of the eastern and south-eastern districts.

Hand Labour.—The lambing season for the Down sheep is now far advanced; and considering the extreme severity of the winter the fall of lambs is reported an average. The lambing season of the long-woolled stock will soon commence. These sheep have generally a more favourable lambing time as regards weather than the Down sheep which lamb in the dead of the winter: they also require less care and attention, because when lambing takes place in the end of February and through the month of March a shifting fold upon a dry sheltered pasture, with strict night and day attention, is nearly all that is required. Experience in the shepherd and his attendant is highly necessary at the same time. The

severe winter we find has not been prejudicial to the horned ewes and their early lambs; for, owing no doubt to the weather being dry, many of the best flock-masters have been sending lambs to the London market for some weeks past, but they do not sell so well as such stock did last year. The dairy cows and heifers are now fast coming in for calving, and will require good usage and good food with a dry well-littered bed in the pens. Fatting cattle are now in many instances far advanced towards maturity: 4 lbs. of linseed cake meal and 4 lbs. of bean meal per day, given mixed with cut roots—about 50 lbs. of mangold or 65 lbs. of Swedes—is a good allowance for bullocks of full age with straw chaff *ad libitum*, and they will pay better with this allowance than a larger amount of cake or meal, the result of which would only go to swell the dung heap instead of improving the animals. Fatting pigs should now be fed with mangold pulped with Bentall's machine (which we consider the best in use), and mixed with one-fourth barleymeal and three-fourths mangold. The meal to be gradually increased to one-third; but about a fortnight before slaughter barleymeal only should be given to finish off a good bacon hog of first-rate quality.

HATCHING AND CHICKENS.

We hear on all sides of the season having thus far been a most disastrous one for the hatching and rearing of chickens. What else could be expected? One breeder of Dorkings, famous for the early growth and maturity of his young birds, writes to us that he has only four chickens and does not expect more for some time; another, whose birds have complete liberty and an immense range, was fortunate to hatch fifty chicks in January, but of these only five survive. We have none ourselves, but this is attributable to other circumstances rather than the weather. This much is certain, that though the season need not necessarily be a bad one by-and-by, it must certainly be a late one. We cannot look forward to early spring chickens, save those bought at an exorbitant price, and managers of shows should take this into account in fixing their dates. We always deprecate the early exhibition of young birds, but more especially should shows in July and August be eschewed this year, when in all probability few chickens will be over five months old.

Our special object now is to point out how the harm done by the severe winter is to be repaired, and that there is no need for breeders to despair of having magnificent produce of the year to show by Christmas. The causes of there being so few chickens at present are three—viz., eggs having been unfertile, the germ having been destroyed by the frost, and the chickens having been killed by the cold. The two latter mishaps are hardly likely to recur after March has set in. It is only in very great cold that eggs if not protected directly they are laid have their vitality destroyed, and when the days get to their present length chickens are better able to resist short and sudden spells of bad weather than during the shortest days. The third cause of failure, however—unfertility of eggs, may still be a trouble. The great duration of the winter and the number of days on which the ground has been frost-bound or snow-clad, and so the birds debarred from grit and insect food, has in many cases impaired their health. It seems late to talk about the arrangement of breeding pens, still this must even now be attended to. We would set a few eggs from every pen, and after six days try them with an egg-tester before a candle; it will be easy to distinguish from which pens they are fertilised, and from which clear. To birds in the latter special care should be given. We are generally strongly averse to stimulating foods, but this is just the case and time for them. We much prefer Spratt's to all others, as being nutritious as well as stimulating. Some of this should be scalded in hot water, of which it will absorb a considerable quantity, and then mixed with double its quantity of barleymeal or ground oats; this mixture will make crumbly balls of exactly the consistency fowls rejoice in, and a difference in their health and condition will soon be seen. If the eggs from a pen, where the cock is of special value and merit, are found clear, we should advise all but the two very best hens being taken out; there will then be the more chance of having fertile eggs and strong chickens from the hens remaining.

Again, when the chickens are hatched we cannot expect them to be so healthy and vigorous as when the parents have had plenty of exercise and natural food. They, too, will probably require a more generous diet. We have often written against the early pampering of chickens with all kinds of dainties, which makes them afterwards refuse plainer food, but there are times when they must have some stimulus. Our own poultryman then mixes Spratt's food and Scotch oatmeal in equal proportions, scalds the mixture with as much boiling water as it will absorb, and then adds bread crumbs or Indian corn meal. Our chickens have always seemed to thrive on this. As they become strong and the weather improves the quantity of Spratt's meal can be gradually lessened. There is no cause for despair because our broods are late. Some of the best birds of the year we have ever had have not seen the light till April. A dark Dorking cockerel, cup bird at the Crystal Palace against some fifty competitors, was hatched in the second week of April. A white Dorking cockerel which in October won the cup at Oxford, and in November at Birmingham, was hatched on April 12th. We could give many more such instances. Even July chickens often turn out the best birds as adults, but cannot of course compete as chickens. After such a spell of frost and snow we may spon hope for spring, and if it be a fairly settled one we may still have an abundance of chickens at a time when they are subject to fewer changes and checks, and so are all the more likely to develope into robust birds.—C.

POULTRY EXPERIENCES.

I wish to add my testimony to the value of poultry for home consumption. My fowl house is only a wooden structure divided into two compartments, with nests round the bottom, a broad shelf over them, and perches all round. The chickens are hatched in barrels, and afterwards the hen and chicks live in coops with home-made runs—an old box wired at top fitted to the coop. These are very inconvenient but very healthy, as, except in a solitary case, no disease has ever been among the poultry. The result was ninety-two chickens and ducklings, and profit stood thus:—

1878.	£	s.	d.
73 chickens hatched . . . . } 19 ducklings . . . . . } value	9	13	6
1759 eggs . . . . . value	7	7	0
	£17	0	6
Food and labour	13	6	7
Profit. . .	£3	13	11

The quality of the poultry is excellent, and the eggs are also of superior quality. The birds roam over a field of three or four acres. In January, 1878, our stock consisted of sixteen hens, four cocks (three old favourites), four ducks, and one drake —Amateur.

The publication of Mr. F. C. Taylor's outlay on houses and runs completes my obligation to that gentleman, whose experience as to cost tallies with my own.

I should be inclined to charge 10 per cent. depreciation, my plan being to divide poultry accounts into three sections—viz., 1st, Dead-stock account, which includes costs of runs, houses, repairs, corn boxes, pans, &c. On this account there is of course a continual loss—viz., interest on capital sunk and depreciation, besides annual little expenses, such as tarring, limewhiting, gravelling, &c. The great point in this account is to secure strength of material at the lowest cost. Your readers can doubtless furnish many examples of efficiency with economy, it being a *sine qua non* that the buildings hold together for at least ten years, 10 per cent. depreciation being the maximum that fowls can reasonably be required to pay off annually.

My next section (2nd) is the Live-stock account, which may or may not show a profit according to the varying advantages of site. (*a*) If in a confined space in a town where eggs only are the object, the owner will doubtless kill off the hens just before moulting, taking care to secure early pullets to lay in October or November. This is the dearest method, and one requiring great skill to keep the stock at a low figure. I entertain the opinion that success is only to be obtained by securing thoroughly good, pure, egg-producing breeds. (*b*) In situations slightly better it may be possible to rear only sufficient chickens for replenishing the stock of pullets, in which case there will be a certain amount of profit from the surplus cockerels, and the stock may be kept up at a lower rate than that of purchase. We may call these suburban cases. (*c*) In situations where many chickens can be reared there will naturally be a good profit, which profit may be shown as representing the depreciation on the buildings.

My third section is the Current account, which comprises all current expenses—*i.e.*, all foods, &c., and all current receipts from eggs; and Mr. F. C. Taylor will notice that to simplify matters all food costs are included, it being unnecessary to keep separate accounts of food consumed by chickens killed before grown to pullets. If properly managed there will be enough eggs to cover all expenses.

By this triple plan we are first enabled to tell beginners how much fowl runs are likely to cost, secondly how much the fowls themselves may be assumed to cost, and finally for how much or for how little eggs can be obtained. The weak point in the system, as Mr. F. C. Taylor remarks, is that the absolute cost of the poultry in the second section is not arrived at; but as a broad easily applied principle is all that is needed your correspondent will perhaps accept the plan. His accounts will still show up well even with the increased burden of houses and runs: thus—*Dead-stock Account.*—Runs and utensils, say £22; interest on same, £1 2*s*: total, £23 2*s*. Depreciation, £2 4*s*.; valuation for 1879, £20 18*s*.: total, £23 2*s*. *Live-stock Account.*—Birds bought, £2 18*s*. 6*d*.; depreciation of buildings, £2 4*s*.; total, £4 17*s*. 6*d*. Birds killed and sold, £2 16*s*.; cost of present stock (1*s*. 10½*d*.

each), £2 1*s.* 6*d.*: total, £4 17*s.* 6*d.* *Current Account.*—Food cost, £7 12*s.* 11*d.* Manure, 10*s.*; 1689 eggs cost £7 2*s.* 11*d.*: total, £7 12*s.* 11*d.* The eggs costing a very small fraction over a penny each. We may fairly congratulate Mr. F. C. Taylor on his success.

Now for "A. B. C." There is a slapdash air about his financial statement which is very amusing, but it is too crude to be valuable as it is. His site is exceptionally favourable, and is calculated to raise envy in the breasts of those of us who have to commence operations on the bare ground or between three bare walls. I take it that we want to solve the problem for those whose surroundings are unfavourable. We may gather a good lesson from "A. B. C.'s" accounts, and wonder how it happens that our island is not self-supplying in poultry matters. *Live-stock Account.*—Original stock cost, £4; profit to egg account, £5 1*s.* 4*d.*: total, £9 1*s.* 4*d.* Poultry killed, £9 1*s.* 4*d.*; present stock cost nil: £9 1*s.* 4*d.* *Current Account.*—Food cost £9 2*s.* Live-stock account balance, £5 1*s.* 4*d.*; 1282 eggs cost three-farthings each, £4 0*s.* 8*d.*: total, £9 2*s.*

By calculation I am inclined to think the prices quoted for poultry killed to be reasonable; and the question naturally arises, If "A. B. C." can grow eggs at three-farthings each all the year round and keep up his stock of poultry without cost, what is to prevent others doing the same? I can only suggest in answer that it may be possible to earn money quicker in other ways. Anyhow, there can be no doubt that fowls do pay a very handsome profit on outlay.—COL. B.

THE CRYSTAL PALACE BIRD SHOW.

(*Continued from page 167.*)

TIME pressing somewhat heavily upon us last week, we were compelled to curtail our remarks respecting the Canary and Mule portions of the Show. One fact is evident respecting the cayenne-fed Norwich birds, that they have fallen off in the number of entries compared with the show of 1878, whilst the good old-fashioned coloured birds, non-peppered, have increased this year. Still the number of Clear Yellows and Buffs in the first six classes were most of them very attractive in colour. The competition between Messrs. Mackley's No. 10 and Mr. Russell's No. 5 was close, the former exhibitor having the advantage in each instance for colour and condition—a clever win, notwithstanding the defeated bird had previously won a first at Northampton, first at Bradford, and a second at the Alexandra Show. In the Clear Buffs the scales were turned in a marked degree by Mr. Russell's first Alexandra making an easy win here also with an exceedingly fine bloomy bird, to our thinking the best out during the Show season. The class throughout was a good one. Class 3, Evenly marked Norwich, had just half a score representatives, nearly all winners apparently at first view, but varying somewhat in their show points. The words "evenly marked" in this class is a condition much to be regarded, and with this view before the Judges the decisions were arrived at. Our notes describe the winners thus: First-prize (White) best in eyes and wings, of good size and condition, but not quite so high-coloured as the second-prize bird (Mackley's), which also possessed good eye and wing marks, the latter in our opinion being a better bird than Messrs. Mackley's, No. 44, in which was entered in the catalogue at double the sale price, and received a very highly commended card; but the bird is marked too heavy in the wings, and possesses the grave fault of having marks in the front of the eyes bordering upon the forehead. No. 47 (Mackley's very highly commended) at first sight appeared a likely winner; but a light feather in the wing where a black one should be kept the bird in the rear. Considering the difficulty of getting thorough perfect marked birds to the post, the class was a good one although few in number. Class 4 (Evenly marked Buffs) were more numerous, Messrs. Mackley being first with a moderate-priced bird, and second with a specimen entered to be sold for £20. Our notes describe the winner as a splendid first, compact in build, with good marks; and the one it defeated as a very fine pointed second. This class was an excellent one, containing several very highly commended and highly commended birds in it. The Uneven-marked Yellows and Buffs were profusely represented. Their chief qualifications being colour, condition and quality, there was not so much difficulty in arriving at the prize-winners, the chief honours being taken by Messrs. Mackley and Mr. Russell's birds.

The next six classes contained non-peppered Norwich, the competition in each class being good. The first-prize Yellow was a pretty silky-feathered bird, the picture of health and condition, and of moderate size, such a bird as we should prefer for breeding with for future stock in preference to those of a coarser-feathered kind we noticed here and there in the class. The Buff Norwich were excellent, the three prizes being won by Mackley Brothers, who appeared to be leviathans in the Norwich classes, winning no less than twenty-two prizes in twelve classes. The first-prize Even-marked Yellow (Cleminson) was beautifully pencilled on eyes and wings—a bird we believe we have seen before at Wellingborough as a first-prize winner. We considered it an easy winner.

There were many magnificent crested birds with larger crests, we believe, than any seen before the present season. Formerly it was a somewhat difficult matter to bring forth Yellow-crested Norwich with abundant crests, but now that difficulty appears to be surmounted, for several Yellow specimens were shown which attracted considerable attention. We admire a heavy uniform-crested bird with a crest striking from the centre of the crown without showing a large bald centre, which to our thinking completely spoiled the appearance of one of the birds in Class 18, which had a bald speck in the centre of its head the size of a small pearl button. As to the Buff-crested birds, generally speaking they were fine beyond doubt, and they may well be termed "King of Crests," "Queen of Crests," and "Masterpiece," owing to the immensity of feathers each specimen possessed. The chief winners in the Crested classes were Mackley Brothers, Russell, Pearl, Hopkins, Waite, Hayton, and Kerwin.

The Belgian birds showed good breed, Mr. Rutter again exhibiting largely and winning most of the prizes. Still he found strong competitors in the persons of Messrs. Peet and Rae, the former taking first honours in Class 18 (Yellow Belgians), and the latter exhibitor second prizes in Buff Belgians.

The London Fancies were somewhat behind former shows for general quality, but the Lizard birds came to the front in excellent feather for caps and spangles. In the two classes for Jonques and Mealies Mr. Irons of Northampton put in an appearance against his more southern brethren, and won first prize in each class. The first-prize Gold-spangled Lizard (Halse) was a very good sample of what a Lizard bird should be, possessing size, richness of plumage, large cap, distinct spangles, black legs, and general condition; and had the bird not possessed these essential qualifications the second-prize bird (Cleminson) would have been first. Mr. Reid's Silver-spangled Lizard likewise won an easy first for its general commendable qualities, albeit Mr. Bunting's second was a fair stamp of a Silver bird. In the Broken-capped Golden class Mr. Cleminson won an easy first, and in the Broken-capped Silver class Mr. Bunting showed an exceedingly fine feathered specimen for a first prize.

The other classes for Canaries comprised about thirty Yorkshire birds, the principal winners being Messrs. Cleminson, Thackeray, Troake, Wilkinson, and Belk; nearly eighty Cinnamons of peppered and non-peppered kinds were shown, Messrs. Mackley, Doyle, Yallop, Fairall, Barker, Barwell, and Bexson; upwards of thirty Coppies and Plainheads, the winners being Messrs. Wright and Smethurst (six prizes), and Yallop, Radmore, Mackley, and Wilkinson; besides fourteen Canaries of the Scotch Fancy kind. The groups of six Canaries in each cage and the Mules were very attractive, and formed a great feature in the Show. In Class 43 in the catalogue, entry 536 is stated to be disqualified, whereas it should have been 536A.

VARIETIES.

WE have received the Spring Catalogue of Farm Seeds of Messrs. James Carter & Co., High Holborn, London, which, besides enumerating a great number of roots and affording evidence of their quality, is freely illustrated with those roots that in the hands of experienced cultivators have won the various prizes that are referred to in the publication.

—— A PAMPHLET lately issued by the Amies' Manure Company contains a remarkable array of testimony in favour of the manure from cultivators of various grades in many districts, who speak with high approval of it as a fertiliser for the several farm and garden crops to which they have applied it.

—— "W. J." writes as follows on applying comb foundation to straw skeps:—"The great gain in employing comb foundation is clearly established in your columns, but how it is to be inserted in my large Pettigrew straw skeps with their numerous cross sticks I am at a loss to conceive. Should the sticks be left out, on moving my hives to the moors they must come to grief. I am afraid it is the case over again of putting new wine into old bottles. Is it advisable for me to abandon my old skeps and run-honey system, and go in for frame hives and super honeycomb? As many are in the same doubt as I am for the coming season, kindly insert this to draw forth a general expression of opinion."

—— MR. RAITT communicates the following recipe for candy feed for bees:—Boil in a common pot as much sugar as may be required, with as little water as will melt it—say half a teacupful to each pound of sugar. Keep stirring briskly for ten minutes or so; then try a few drops on a spoon, holding it in cold water. If it gets stiff enough to draw into a thread take the pan off the fire. The mass if now poured out would give a very thick syrup or clear barleysugar; but if stirred briskly in the pan for a few minutes before pouring out it will begin to thicken and granulate, and if now poured out and cooled will furnish a hard white cake in which there still remains so much water thoroughly incorporated that, though it will not melt and run down as barleysugar does, it is very easily dissolved by the bees. The flour—common wheat flour—is stirred in just before

pouring out, a handful to each pound of sugar. The best form of cake is had by spreading a sheet of thin paper over a soup plate and pouring about a pound into each. In ten minutes or more it may be lifted out and the paper taken off. The cake is then slipped under the quilt of a frame hive, or laid over the feed hole of a skep, and warmly covered up. Mr. Raitt has lately discovered that the bees will to some extent store the flour as they do pollen, but generally it will be found that it is all used at once by the bees for their own nourishment or that of their young. Should anyone fail to get a good hard cake at first, it can be re-melted and boiled a little longer. The flour now in it will, however, cause it to boil over very readily.

NITROGENOUS DIET FOR BEES.

Now that spring feeding will shortly commence, what to feed with—syrup, candy, honey, the various kinds of flour, &c.—will be the anxious thought of many. After the severe winter ordeal that British bees have gone through, my experience thus early in the year of a course of nitrogenous diet may be useful to your readers.

"Keep your stocks strong" is a cardinal principle in bee-keeping; but suppose that from any cause your stocks have dwindled to very weak ones. Having those weak stocks, but healthy, and queens of known value, what would you do? Buy up stocks to fortify them with? Of fifty stocks by uniting make twenty-five? No; that has not been my plan. In the first place you may not easily find colonies for sale, and price may be an obstacle. In the second place, having fifty stocks you want to meet the harvest with that number if possible. So we come back to the only solution of the question—viz., careful feeding-up.

"What new nostrum now?" I imagine I hear your readers exclaim, seeing we have lately been reading of Mr. Raitt and his bannock soaked in honey, and not long ago I saw a description of a garden plot of gigantic paper crocuses constantly supplied with artificial pollen by the careful bee-master.

Well, my nostrums are milk food and egg food, with a condiment to assist digestion; and my experience is that of December, 1878, January, and part of February of this year.

I wanted to make my stocks strong, and that quickly, so I read up the subject of feeding and pondered it over, coming at last to the conclusion that it was that kind of food which in a small compass contained the most highly essential ingredients for forming animal tissue that ought to be given.

Whether pollen forms the slices of toast a bee takes with his coffee of a morning or not I do not know; but I do know that vast quantities of pollen go into the hive if the weather is favourable and a supply at hand. I believe it goes in to feed both young and old bees from one simple consideration, that in the pollen is found that which is necessary for the formation and maintenance of all muscular tissue. I refer to nitrogen.

Let us take one analysis of pollen:—

Water	12·74
Ash	2·72
Albuminous	21·75
Sugar	26·20
Artificial nitrogenous organic substances	36·59
	100·00

Here we find albumen and nitrogen predominating.

A French authority writes thus: "We distinguish in pollen—

"First, the waxy matter which holds the grains together;

"Second, the matter which forms the walls of those grains;

"Third, the matter contained in those grains.

"First and second contain only carbon, hydrogen, and oxygen; but the third when analysed gives—carbon, 0·52; hydrogen, 0·7; nitrogen, 0·11; oxygen, 0·80." My authority goes on to say it is these nitrogenous parts of the pollen that are the nutritive portion for the bees, and the most important to consider.

This interior portion of the grains of pollen is the only part which contains nitrogen, that body indispensable to the nourishment of larvæ and bees.

Now we know that no muscular tissue can grow without albumen which contains nitrogen, and that certain articles of food are richer in nitrogenous compounds than others; and we find in milk and eggs two notable examples.

In milk we have all classes of simple alimentary substances together, it being composed of water, compounds of chlorine salts, caseine, fat, and sugar, whilst the egg contains six of the alimentary principles—viz., carbon, hydrogen, oxygen, nitrogen, sulphur, and phosphorus, all easily soluble and assimilable.

All concentrated foods are difficult of digestion, and so we supply a condiment to assist digestion in the shape of common salt placed in their drinking troughs.

Having, therefore, decided upon articles of food, I have tried them, and with such a measure of success that I hope my experience thus early in 1879 may be of use to induce others to follow on the dietary and report results.

The milk food I prepare thus: It is first boiled soon after being milked, the clot removed, and then if sugar be used to sweeten it, a pound of sugar is dissolved in each quart of milk. If honey be used the milk must become cold before the honey (a pound to a quart) is added, and it must not be warmed again. Boiling prevents souring; and as skimmed milk is most easily digested, the clot which is caseine is removed.

In the milk of asses we find a poverty of fatty matters and an abundance of sugar. Those who keep these animals will, I hope, take the hint, and feed their bees with their milk, letting us know the results.

The egg food I prepare thus: When a sufficient number of eggs have been broken into a basin they are well whisked, and honey added in the proportion of double weight of honey to a given weight of egg substance. To eggs I have likewise added a sugar syrup made of 7 lbs. of sugar to 4 lbs. of water.

This milk and egg food I give at night in little tin trays either placed inside the hive or outside on the doorstep, the quantity being regulated to the size of the stock. The milk food I give every night, and can see no ill effect. The egg food I give for two nights, and allow the third to pass minus food. At each feed I give what I consider adapted to the strength of the colony, As the hive grows in strength so the quantity will have to be increased.

If I notice that they are storing it away too rapidly I slightly diminish the supply. This refers to milk diet, but with egg food I am careful to give only what I feel sure will be consumed in the night. If I find any left in the trays next day I remove it and let another hive finish it at once.

The results are simply these, that by the above means you can start the queen laying at any moment, and as fast as the bees hatch out strong enough to cover the brood every cell of a fresh frame of empty comb you insert will be found to contain a freshly laid egg.

I have one hive now fed on milk only. Six weeks ago it contained simply a queen and a handful of bees. They now cover four frames (Woodbury size), having built out their comb from Raitt's foundation, and are now busily engaged on a fifth. One noticeable fact is, that whereas those particular bees were weak and puny, never showing fight, the present generation are large strongly developed bees.

Let us consider the enormous waste of muscular tissue per diem in every hard-working bee; and remembering that sugar in any form, being devoid of nitrogen, is contributing in no degree to the sustenance of that muscular tissue, I think that we can only come to one conclusion, and that is that bees do eat pollen.—ARTHUR TODD, *Algeria*.

A STORE FOR HONEY AND APIARIAN APPLIANCES.

I SEE in our Journal of the 20th ult. that the Baroness Burdett-Coutts has offered a shop and store in Columbia Market for the sale of honey, and I trust that the Bee-keepers' Association will avail itself of the offer. It would, I believe, increase the number of the associates. I have myself held back because I could not see any advantage in belonging to the Association. I would further suggest that the store be not only for honey but for all kinds of hives and appliances. This would be a great advantage to hive manufacturers as well as to purchasers. Our most skilled hive makers live in the country, but it is both expensive and inconvenient to pay them a visit; but London is the great centre, and most of us have occasionally to pay it a visit.

One of my greatest drawbacks to bee-keeping has been to get a sale for the honey. I applied to a grocer in a large town, and he showed me a glass of American honey said to be collected from orange blossom. It was liquid, with pieces of comb floating in it. My impression was that it was sugar syrup, for had it been honey it would surely have crystallised. He informed me that this quite cut the English honey out of the market, and that he could only give a shilling a pound for super honey in the comb, and that he was supplied for the season. Some certain market for honey would be a great encouragement to bee-keeping.

I had almost made up my mind to reduce the number of hives to my home consumption, but I shall defer doing it in the hope of Columbia Market store.—S. B.

MODERN BEE MANAGEMENT.—No. 6.

APIARIAN APPLIANCES.

FEEDER.—At times it is necessary to feed bees as in early spring or late autumn to stimulate breeding, or at any season when stores are short. No feeder should be used which offers any temptation to stranger bees or to wasps. Of this class are all those, so common, which are inserted in the doorway or floorboard, and which have the great disadvantage of being beyond the reach of the bees in cold weather or when the colony is weak. Nor should any feeder be used which allows the syrup to trickle down and smear bees, combs, or floorboard. A proper feeder must be accessible to the bees without their leaving the cluster, and must give facility for regulating the supply according to the object in view. All hives should have a permanent feed hole of 1½ inch

above the combs. Should the bees be clustered in a corner of the hive, it may be necessary to cut a fresh hole for the purpose. Over this should be placed a small piece of board with a corresponding hole covered by a piece of zinc or vulcanite perforated, so that from one to a dozen pinholes may be brought over the feed hole at will. On this plate a wide-mouthed bottle or tumbler full of syrup may be inverted by means of a small tin shovel. The atmospheric pressure will support the liquid till the bees suck it through the pin holes. For winter and early spring feeding I much prefer the solid candy cake referred to by Mr. Pettigrew in a late number.

Queen Cages.—These should be made of fine wirecloth with a mesh of about an eighth of an inch, so that the bees outside may have every facility for forming acquaintance with the queen. Two forms of cages are used. The one shown in the illustration

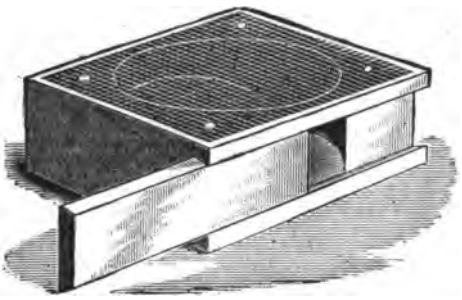


Fig. 25.—Queen Cage.

(fig. 25), sold by Steele, is very useful for temporarily confining a queen and her retinue, or for sending by post. It is sent out supplied with enough candy cake run into a corner to support the queen and bees for a fortnight or more. By supplying water occasionally on a bit of sponge they may live for months in it. With proper care this cage may also serve for introducing a queen to a strange colony. I prefer, however, another style of cage for this purpose which anyone can easily make for himself. It consists of a piece of wirecloth about 4 inches square, rolled round a bar of wood measuring 1⅜ inch by about half an inch. The joint is secured by a few stitches of thin wire. The bar of wood is then withdrawn, and enough cut from the end of it to form two plugs for the ends of the cage. Various excellent but somewhat costly cages are sold by dealers, fitted with some form of trap door for liberating the queen when desired, without the disturbance caused by withdrawing the cage from between the combs. As I always like to see what sort of reception her majesty meets with, I prefer the home-made cage referred to. Often, even after a queen has been caged for days in a hive, she will be attacked by the bees immediately she is liberated. By withdrawing the cage gently and allowing the queen to walk out within 2 inches or so of the feed hole we can always see how she is received, and be prepared to rescue her if attacked.—WILLIAM RAITT, *Beecroft, Blairgowrie, N.B.*

STEWARTON HIVES.

IN the Journal at page 148 I see an answer to a correspondent about Stewartons to which I take slight exception. I advise the use of screws in whichever box might be on the top for securing the bars firmly. Then, again, small sectional supers can easily be worked on them. I have ten sectionals above the first honey box and use no adapting board, of course covering up warmly. I do not consider the bees do quite as well, as Stewartons proper are such capital hives for yielding fine surplus honey in good districts, but it pays the bee-keeper better because of the more ready sale, unless he has customers that appreciate and pay for good run honey.—A DERBYSHIRE BEE-KEEPER.

I READ your reply to Mr. R. A. White that screws were an undoubted objection, and removed them from one of my new boxes. Carrying it out of the room sideways, frames, bars, and slides all fell out on the carpet. To invert the hive for the purpose of driving, only fancy the smash and ruin of the entire contents to Mr. White. Kindly counsel him, and he will thank—A LADY.

OUR LETTER BOX.

FOWLS EATING EGG SHELLS (*A. P. B.*).—It is almost an admitted fact that fowls eat the shells of the eggs they have laid in order to form those about to arrive at maturity. Having accidentally come across the contents they like them, and from that time forth they have a double motive for eating their own production. In consequence it becomes necessary to provide them with that they lack. The principal ingredients are chalk and lime. These cannot be given in a more economical or more useful form than in that of bricklayers' rubbish. The best plan is to throw down a barrow-load in their haunts, choosing some place where it will remain dry. There is generally in these cases some little disturbance of the health and the secretions. We advise that the fowls be carefully watched, and the peccant ones removed. The habit also sometimes arises from a diseased form of fat. Green food is the treatment for this. Let them have dandelion (if at hand) morning and afternoon. If you can substitute lettuce do so, and give it as frequently as you can. But watch your birds; they acquire the habit, and one bird in a pen will make all his or her companions to follow the bad example.

SIZE OF MR. RAITT'S HIVE (*Novice*).—The hive described on page 128, and illustrated on page 147, is 23¾ inches long, and 14½ inches broad inside. The inner skin on which the frames hang is 9 inches deep. The length is apportioned thus:—14½ inches for ten brood frames, 8 inches for four wide frames for sections, and 1½ inch for two dividers. When fitted up complete the materials will cost about 16*s*. This includes Abbott's excluder zinc by which the first of the wide frames is covered at each end, the sixteen sections in these frames, and a set of fourteen sections fitted as a super, with roof and all necessary fittings.

TWO DOORS IN A HIVE.—A correspondent "F. J.," wishes to know if two doors, one in front and one at the end of a sixteen-frame hive, would be advantageous while bees are at work, and what difference it would make to the bees of the frame run across the hive from side to side instead of from front to back. For many reasons one doorway is better than two in a large hive. Some of the outside combs of large hives are filled with pure virgin honey, equal to the best super honey. In a frame hive of sixteen bars, two at each end may be often found unsoiled and spotlessly pure, filled with the best honey; but if a doorway were cut in the end of the hive the traffic of bees in and out would discolour the combs and make them unsightly. This same reason holds good in favour of the combs running from front to back. If the bars were to run from side to side no bars of honeycomb could be taken from the front of the hive. Combs going from side to side would also prevent the bees from going straight to the door. From every comb they would have to go to the board, and then at right angles travel on it to the door. The bees have to travel greater distances inside their hives when their combs run in the wrong direction, and one door of sufficient width is better than two in either large or small hives.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
1879. Feb. and March.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 26	30.019	33.3	32.3	N.E.	35.2	36.5	32.5	52.9	31.0	0.653
Th. 27	30.010	32.6	32.0	W.	35.1	38.6	30.2	55.5	28.3	0.032
Fri. 28	29.750	40.7	40.7	W.N.W	35.9	47.4	32.7	49.8	31.8	0.160
Sat. 1	29.966	39.6	38.4	N.	37.6	46.8	36.3	71.2	34.4	—
Sun. 2	30.190	35.0	34.5	S.W.	37.2	48.8	29.2	85.9	27.4	—
Mo. 3	29.918	36.8	37.6	W.	37.0	45.2	32.0	75.3	28.6	0.047
Tu. 4	30.095	39.7	37.3	S.S.W.	36.8	50.0	31.1	79.3	27.8	—
Means	29.990	37.1	36.1		36.4	44.8	32.0	67.1	29.9	0.312

REMARKS.

26th.—Dull in early morning, fine afterwards, high and very cold wind; slight shower of sleet at 1.5 P.M.

27th.—Ground covered with snow in morning, which gradually melted; fine rain after 11 A.M., very thick and gloomy.

28th.—Slight fog, damp and very gloomy all day.

March 1st.—Fine calm day; foggy at night.

2nd.—Thick white frost in early morning; fine and nearly cloudless day; highest temperature in sun this year; starlight night.

3rd.—Fair morning, slight rain between 10 A.M. and 2 P.M., fine afternoon with sunshine; moonlight evening.

4th.—Fine bright day, rather overcast at 4 P.M.; moonlight evening; windy during the day.

A rather finer week, but temperature still below the average.—G. J. SYMONS.

COVENT GARDEN MARKET.—MARCH 5.

A BARE market and little business doing, Grapes alone being in any demand. A few Strawberries have reached us, making a fancy price. A large cargo of St. Michael Pines has arrived during the week, the per-centage of best fruit being small, causing better prices to be made.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	2	0	to	6	0	Melons	each	0	0	to	0	0
Apricots	dozen	0	0		0	0	Nectarines	dozen	0	0		0	0
Chestnuts	bushel	12	0		16	0	Oranges	⅋ 100	4	0		10	0
Figs	dozen	0	0		0	0	Peaches	dozen	0	0		0	0
Filberts	⅋ lb.	0	9		1	0	Pears, kitchen	dozen	4	0		6	0
Cobs	⅋ lb.	0	9		1	0	dessert	dozen	3	0		8	0
Grapes, hothouse	⅋ lb.	2	6		8	0	Pine Apples	⅋ lb.	1	0		3	0
Lemons	⅋ 100	4	0		8	0	Walnuts	bushel	0	0		0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	2	0	to	4	0	Mushrooms	pottle	1	6	to	2	0
Asparagus	bundle	6	0		12	0	Mustard & Cress	punnet	0	2		0	0
Beans, Kidney	⅋ 100	1	0		1	6	Onions	bushel	2	6		4	0
Beet, Red	dozen	1	0		2	0	pickling	quart	0	4		0	0
Broccoli	bundle	0	9		1	6	Parsley	doz. bunches	2	0		6	0
Brussels Sprouts	½ sieve	2	0		4	0	Parsnips	dozen	0	0		0	0
Cabbage	dozen	1	0		2	0	Peas	quart	0	0		0	0
Carrots	bunch	0	4		0	8	Potatoes	bushel	3	6		4	0
Capsicums	⅋ 100	1	6		2	0	Kidney	bushel	4	0		5	0
Cauliflowers	dozen	3	0		6	0	Radishes	doz. bunches	0	0		0	0
Celery	bundle	1	6		2	0	Rhubarb	bundle	0	0		0	6
Coleworts	doz. bunches	2	0		4	0	Salsafy	bundle	0	9		1	0
Cucumbers	each	0	9		2	0	Scorzonera	bundle	1	0		0	0
Endive	dozen	1	0		2	0	Seakale	basket	2	6		3	6
Fennel	bunch	0	3		0	0	Shallots	⅋ lb	0	3		0	0
Garlic	⅋ lb.	0	6		0	0	Spinach	bushel	2	6		4	0
Herbs	bunch	0	2		0	0	Turnips	bunch	0	2		0	4
Leeks	bunch	0	2		0	4	Veg. Marrows	each	0	0		0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 13—19, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
13	TH	Royal Society at 8.30 P.M.	50.4	34.0	42.2	6 21	5 58	0 16	7 57	20	9 41	72
14	F	Queckett (Microscopical) Club at 8 P.M.	50.8	34.4	42.6	6 19	6 0	1 36	8 42	21	9 25	73
15	S		50.6	33.6	42.1	6 17	6 2	2 41	9 41	☾	9 8	74
16	SUN	3 SUNDAY IN LENT.	51.0	34.0	42.5	6 14	6 3	3 30	10 51	23	8 51	75
17	M	London Institution at 5 P.M.	52.0	32.5	42.3	6 12	6 5	4 5	0 a 8	24	8 33	76
18	TU	Zoological Society at 8.30 P.M.	49.9	33.0	41.5	6 10	6 7	4 31	1 25	25	8 16	77
19	W	Society of Arts at 8 P.M.	50.9	33.0	41.9	6 8	6 8	4 50	2 41	26	7 58	78

From observations taken near London during forty-three years, the average day temperature of the week is 50.8°; and its night temperature 34.9°.

NOTES ON CUT FLOWERS.

WHAT a weary winter must the present have been to those who have been waiting for Christmas Roses, Violets, and Aconites to usher in the hardy flowers of spring and ease somewhat the strain on the indoor flowering plants! Yet here we are in the last week of February and in the midst of another snowstorm, and thankful indeed to think that, much as we appreciate the hardy flowers, there has been a sufficiency of flowers throughout the winter for all purposes without them, and that as the spring advances, notwithstanding the weather, flowers will not be wanting.

Flowers are now-a-days a simple necessity in the homes of the wealthy, and from their nature must be supplied from home gardens. A dearth of fruits or vegetables can at all seasons be made good by purchasing—other countries supplying both—should the home supply fail. Practically each garden has to supply the home to which it appertains with flowers, and has to stand on its own producing capabilities in this department or fail. With unlimited accommodation it is doubtless not difficult to have flowers in "armfuls" at any season of the year, but it is not such gardens we have in view just now. What is wanted to be enforced is the best, and indeed only, means of attaining to that happy condition of having a supply which can bear a strain at any season without having a collapse in the supply.

I will state how I manage this part of my duties, and how I have thus far passed through the winter without hardy flowers which had been reckoned on, and how I can continue to go on without that aid. There are only two structures here which are devoted to plant-growing—a conservatory and stove, the others are all primarily dedicated to fruit-production. In these latter the great majority of flowering plants are grown throughout the winter months. At the same time a somewhat extensive flower garden has to be kept in remembrance when allocating space in these structures, so that by the time everything is placed in winter quarters the whole of the houses and pits are filled.

Until the time Chrysanthemums come in, and in fact overlapping the earliest of these, there are various Asters, late Roses, Sweet Peas, late-flowering annuals, &c., which are very useful. Single Dahlias are also of great value at that season, and it is generally into November before the sole supply of cut flowers is derived from plants grown under glass. In preparing stock for the above purpose the important point is kept in view of relying on a limited selection of plants, which with proper management will be certain to supply us with their crops of bloom in due season. Mixed collections—a plant of this and another of that—are eschewed as being both unprofitable and unreliable. We have, as a matter of course, single examples of many plants, but these are left out of the list entirely, as a rule. Well, then, Chrysanthemums are a *pièce de resistance* during three of the worst months. They are transplanted into bare places by walls, in front of glass houses, or wherever a likely spot happens to be found where one or two can be put, while the main lot are safe under glass in a cool house. At the same time that these arrive in quantity zonal Pelargoniums are also just then of great service. Schizostylis coccinea is grown in numbers sufficient to enable us to cut spikes by the dozen. A large batch of yearling Cyclamens keep up a supply of their valuable flowers well into spring. Two or three species of winter-flowering Begonias in quantity are most useful throughout the dreariest of the months. In January a batch of strong-grown plants of Richardia æthiopica commence furnishing their superb blooms and distinct foliage. By the time that February is on us Lily of the Valley in any reasonable quantity is to be had; a large number of Chinese Primulas are in bloom, with Euphorbias, Epacrises, Spiræas, and Dutch forcing bulbs. Camellias in pots are also coming on in quantities; and with Azaleas, Deutzias, and other plants which come into flower almost naturally, we can wait with patience for the long-looked-for Christmas Roses, the satiny Sisyrinchiums, the beds of Codlins and Cream and Butter and Eggs, which are now thrusting the yellow points of their leaves through the snow; and then there will be Hepaticas, Anemones, and Golden Doronicums; and soon the floral gems will multiply, and flowers will be everywhere. Indispensable throughout winter are a few plants of winter-flowering Heaths, Eucharis amazonica, berried Solanums, a goodly quantity of large-flowering Mignonette, a sufficient number of Bouvardias Vreelandii and Hogarth, to supply blooms throughout the season.

Wherever there are means a number of the best Orchids should be grown; these should be strictly selected for the purpose. A collection of Orchids where not thoughtfully selected is to the ordinary gardener a "white elephant." Cypripedium insigne we have in numbers, and such useful kinds as Lælia anceps, L. albida, Cœlogyne cristata, Calanthe vestita, C. Veitchi, Lycaste Skinneri, Dendrobium nobile, Epidendrum vitellinum, Cymbidium eburneum, and various Odontoglots are being increased in numbers. The most of the Orchids I purchase are selected for winter and spring flowering, as where one has only limited space at disposal they are of most value at these seasons.

Foliage is, if not quite of the same importance as flowers, of nearly as much. In arranging flowers in glasses foliage is, where it is of a suitable kind, used from the same plants as the flowers are cut from. As, for instances, Lily of the Valley is arranged with its own foliage; Cyclamens, Primulas, Tulips, Geraniums, Begonias, &c., in conjunction with theirs; Epacris blooms, Roman Hyacinths, Chrysanthemums, Orchids, &c., require mixing with Ferns. Some of the best Ferns are Adiantum cuneatum, A. trapeziforme, Pteris tremula, P. longifolia, P. serrulata, P. s. cristata, Davallia Mooreana.

In the summer and autumn months there is such an abundance of hardy and half-hardy flowers to select from that flowers grown under glass are almost a superfluity. It is only necessary to mention the Iris family, the Lilies, Pyrethrums, Phloxes, Gladiolus, Roses, and the numberless other flowers which are now quite easily obtainable, in proof of this.

After growing and flowering the plants a point of some importance is that of cutting them. No flowers should be cut rashly or without thought. Flowers which will last a fortnight or a month on the plants should be left, and those only cut which are ready for the knife. Arrange thinly in the glasses, and change the water at least twice in the week, where flowers will last that time in a cut state.—R. P. BROTHERSTON.

KEW GARDENS.

WE observe that Parliament by an overwhelming majority rejected the proposal for opening Kew Gardens at ten o'clock in the morning to all visitors. We have never attempted to blow hot and cold on this question by proclaiming our allegiance to botany and horticulture on the one hand, and on the other attempting to appease the local populace by suggesting a compromise. Our principle is this: Kew is primarily a scientific and educational establishment, recreation being secondary and subsidiary. We are unable to join in an agitation that would make education subservient to pleasure. Neither do we recognise the agitation being in any way national. It is not even metropolitan, but is purely local, and we doubt if the taxpayers of the kingdom would sanction any great addition of imperial outlay for the purpose of gratifying an infinitesimal section of the community. Gardeners and students seeking instruction have admission to the Gardens on all reasonable hours, and a concession has been made to the public by affording them admission early in the morning of public holidays, which is, we think, all that is needed, except by local residents. Kew is not a public park. The timber trees in parks are not liable to injury by thousands of people sporting themselves beneath them; but at Kew the trees are preserved in their natural forms, and their branches sweep the grass, and the specimens are named. Apart from the liability of the trees being injured if not guarded, it is extremely questionable if their names would be considered correct by "young England," who, as railway carriages afford sufficient evidence, has a *penchant* for erasing and altering letters. Who has not seen the printed request in metropolitan railway carriages, "Wait till the rain stops," and on other lines, "Five cats" printed above the seats? In one case the removal of the "t" has converted train into rain, and in the other the removal of the "s," and the "e" changed to "c" have transformed the word "seats" into "cats." Such pranks may be amusing to the perpetrators, but we do not wish to see them indulged in in Kew Gardens; and who will say that while such tricks are played with sentences in railway carriages, that the same ingenuity would not be exercised on the names of specimens at Kew if a large staff was not constantly on the watch to prevent it? We do not think the public demands such extra outlay.

We trust that the Gardens will be maintained in their integrity, and that we have heard the last of this local clamour—for local clamour it is, and nothing more. Some attempt was made to give it a metropolitan character by enlisting the influence of the railway and steamboat companies, who placed petitions at all their stations for signature. That there was no lack of signatures we doubt not, for there are plenty of people who are always ready to sign anything, whether it be to release "a languishing nobleman," to reduce the hours of labour, or even to abolish labour altogether. And what does it signify to the railway and steamboat companies whether Kew is a school of science or a pleasure park, so long as they can advertise "Kew Gardens open to the public at 10 A.M., among such events as "The Chestnuts at Bushy Park," "A Polo Match at Lillie Bridge," or "Races at Sandown?"

SOWING SEEDS.

THE remarks of "A NORTHERN GARDENER" on this subject at page 149 contain advice as sound and seasonable as any that ever appeared in the *Journal of Horticulture*. I think I have said something either directly or indirectly on the same subject in these pages. I fully concur with all that has been said against thick seed-sowing. It is chiefly to indoor seed-sowing that attention is directed at page 149, but the remarks apply with equal force to seed-sowing in the open ground. There are generally two excuses given for thick sowing. One, "in case the seeds should not be all good;" the other, "as there is plenty of seed it may as well be sown thickly." But such excuses do not warrant cultivators spoiling their crops. I find that seeds, as a rule, which are procured from respectable seedsmen at a reasonable price may invariably be depended on to germinate freely under ordinary treatment; and as for sowing thickly because seed is plentiful, it is only a waste of seed in the first place, and a partial or total destruction of crops afterwards.

Take Peas for instance. We hardly ever see them when only an inch or two high, but they are such a thick mass that no soil can be seen between them; and when they grow up they are so close that hardly a pod forms in the centre of the rows, and the whole produce is not only smaller than it should be, but the flavour is deficient. Last year the produce was much heavier from seed that was sown 2 inches apart than from rows which were sown in the old matted style; and although we have been sowing them thinner and thinner every year, we are sowing them thinner still this year, as we are annually becoming more convinced of the many advantages which accrue from thin sowing.

We never saw finer Broad Beans than those which were planted singly about a foot apart, and the same may be said of Scarlet Runners. The finest crop of Onions we ever had was once when the seed was sown so thinly that thinning had never to be resorted to. To-day, March 7th, we have sown many long rows after the same plan. In short, seed of every crop in the kitchen garden should be sown so as the young plants will not touch each other until they are about 1 or 2 inches high, then if thinning has to be resorted to it can be accomplished without touching the leaves or disturbing the roots of the plants which are left for a crop—an advantage of no little importance with such crops as Turnips, Carrots, and all root crops. As seed-sowing is now the order of the day, let me advise all your readers to procure good kitchen garden seeds, if not in possession of them; sow them so thinly that when the plants come up they will not be clustering together in twenties and thirties, but let each one support itself, and thin them before the young plants have time to grow so as to crowd each other.—A KITCHEN GARDENER.

CARNATIONS AND PICOTEES.—No. 2.

IT being not yet too late to procure varieties of which the grower may be in want, I submit a list of varieties which in my opinion are the best in each class.

Scarlet Bizarres.—These, though limited in numbers, are extra fine in quality. They are Admiral Curson (Eason), Dreadnought (Daniels), Mars (Hextall), Mercury (Hextall), *†Sir Joseph Paxton (Ely), True Briton (Hepworth).

Crimson, Pink, and Purple Bizarres.—The following are all good—Captain Stott (Jackson), Col. North (Kirtland), Eccentric Jack (Wood), Graceless Tom (Wood), John Harland (Adams), *John Simonite (Simonite), Lord Milton (Ely), †Lord Raglan (Bowers), J. D. Hextall (Simonite), Marshall Ney (Headley), *Rifleman (Wood), *Warrior (Slater), Wm. Murray (Adams), Falconbridge (May), James Taylor (Gibbons), Sarah Payne (Ward), Satisfaction (Bowers).

Purple Flakes.—I recommend the following—Dr. Foster (Foster), Juno (Baildon), James Douglas (Simonite), Mayor of Nottingham (Taylor), Premier (Milwood), Sarah Payne (a sport), Squire Meynell (Brabbin), Squire Trow (Jackson).

Scarlet Flakes.—The best are Annihilator (Jackson), Clipper (Fletcher), James Cheetham (Chadwick), John Bayley (Dodwell), Sportsman (Hedderly).

Rose Flakes.—Crista-galli (Whittaker), James Merryweather (Wood), John Keet (Whitehead), Lovely Ann (Ely), Maid of Athens (Hepworth), Mrs. Dodwell (Lord), Rose of Stapleford (Headly), Sibyl (Holmes).

Those marked with a star thus (*) are late varieties, and want potting early and pushing-on in order to have them in flower at the general blooming time. Those marked with a dagger thus (†) are very high-coloured, and have a great tendency to run or sport into selfs. They require to be potted in a compost containing little or no manure, and never allowed to be soaked continuously with heavy rains.

In PICOTEES the following varieties were with me the best—

Of *Heavy Red Edges*, which I never remember having seen finer than in 1878, I select the following—Brunette (Kirtland), Countess of Wilton (Holland), Dr. Epps (Smith), is not this the same as Mrs. Fuller? J. B. Bryant (Ingram), John Smith (Bowers), *Mrs. Dodwell (Turner), Master Norman (Norman), Morna (Fellowes), Princess of Wales (Fellowes).

Light Edges.—This is a small class indeed, but still very fine. Thomas William (Flowdy), Thomas Jivens (Flowdy), M.Rev. F. D. Horner (Lord), M.Wm. Summers (Simonite), Clara (Bowers).

Heavy Purples.—The following were all good—Alliance (Fellowes) Chanticleer (Fellowes), John Delaforce (Norman), Medina (Fellowes), Mrs. Summers (Simonite), Picco (Jackson), Zerlina (Lord).

Light or Medium Edges.—Excellent varieties are Ann Lord (Lord), M.Alice (Lord), M.Fanny (Lord), M.Jessie (Turner), Mary (Simonite), Minnie (Lord), M.Mrs. Douglas (Simonite), Silvia (Simonite).

Heavy Rose Edges.—The following are fine—*Charles Williams (Norman), Edith Dombrain (Turner), *Fanny Helen (Niven), Juliana (Turner), Lady Louisa (Abercrombie), Mrs. Lord (Lord), *Miss Lee (Lord), Miss Horner (Lord), Obadiah (Turner).

Light Rose Edges.—*Ethel (Fellowes), Estelle (Fellowes), Mrs. Nicholls (Simonite), Mrs. Allcroft (Turner), Mrs. Adams (Adams), M.Miss Wood (Wood), Teresa (Simonite).

Note.—M, Medium-edged; thus *, late.

Any grower possessing of the foregoing strong healthy plants will find that he will not have occasion to grow many more varieties. There are, however, a few sorts which I have seen but not grown—viz., Royal Visit (Abercrombie), heavy rose; Victoria (Abercrombie), light rose; and Grösten (Fletcher), light red, which are all good.

CALENDAR OF OPERATIONS FOR FEBRUARY.—Give air at every favourable opportunity, leaving off the slides when the weather is fine. Remove all dead leaves, trimming off the ends of those partly decayed. Examine carefully for green fly (aphis), bearing in mind that every insect not destroyed now will perhaps produce thousands. If the weather is favourable water any plants that are dry, but be sure never to water during frost. The plants may be allowed to have the benefit of any showers from the south or south-west. In the absence of rain they will be the better for having a watering overhead, taking care not to shut up the plants until they are dry. Wash all pots, if not done before now, washing also the crocks or drainage. Those who have the convenience should place the compost under cover. In new soil it is good practice to turn the same frequently, picking out and destroying all earthworms, wireworms, slugs, &c.; also pull to pieces the turfy fibre, as it is generally the winter quarters of the wireworm.

At the latter end of the month those who are able to protect the plants by placing them in a cool greenhouse or in frames may commence potting for early bloom. The size of pots will depend partly on the plants and number grown in a pot. For one layer I use a 7-inch pot, for two an 8-inch, and for three a pot 9 inches in diameter. Use when potting about 2 to 3 inches of crocks for drainage, covering the same thinly with litter, leaves, or turfy fibre, so as to prevent the soil from getting down amongst the crocks. In strong soil the plants will not require to be potted so firmly as in lighter compost: this will, if in proper condition, require to be rammed firm to compensate for the lightness of the soil. Never pot in wet soil. As to the quality of soil suitable for growing the plants, any soil that will grow good Wheat will do for the Carnation, although it is well to mix with light sandy soils a quantity of marl, road scrapings from limestone or traprock—anything sweet which will help to hold the soil together.

After potting, the plants will require little or no water for a few weeks, more particularly if north-east or north winds prevail, at which time, if in frames, the plants should be well protected at night, otherwise the young growth may be injured by the cutting winds.

Carnations in Beds.—Those who have planted in beds in the autumn, if the weather permits, should carefully go over the plants, removing all dead leaves and filling up any vacancies (where the plants have died) with fresh plants. Bear in mind not to plant high-coloured varieties in the beds, otherwise the flowers are liable to be run or cloudy in the white. Stir the soil amongst the plants, loosening it if moderately strong, and hunt for slugs. Any plants which may be found severely eaten should be looked to after dark with the aid of a lantern, as in addition to slugs there are two or three varieties of caterpillars which will punish the plants whenever the weather is mild. It is not yet too late for planting in beds. If the weather is favourable double dig the soil, working some decayed manure into the bottom spit, slightly mixing a little in the top, giving a slight dressing of lime, adding a proportion of leaf soil if the ground is heavy, whilst in light soil marl, road scrapings from limestone, &c., may be used to advantage.

The beds should be 3 feet wide with two rows of plants in each bed; this will give 9 inches from the outside of the beds to the rows, in which case the rows will be 18 inches apart, planting the plants in pairs 1 foot from each other. The paths between the beds should not be less than 2 feet wide, so that the plants may be conveniently layered. Where the soil is strong the path should be cut down, forming a trench about 6 inches deep, so as to draw the superabundant moisture away from the beds, leaving it so that the water may run clear away, whilst if the soil is light and porous the paths may be kept at the same level as the beds. Any of the plants which may be leggy or liable to be broken should be secured to short sticks. Should the weather prove very severe it will be as well to cover the newly planted ones at night with flower pots for protection in cold high districts.—GEO. RUDD.

SOWING PEAS FOR SUCCESSION.

"SENEX" (page 171) is not alone in his inability to maintain a succession of Peas, as there are numbers of both amateur and professional gardeners who are similarly situated. A good selection of varieties is of great importance, but much depends on the nature of soil, weather experienced, and treatment given. A light soil produces Peas earlier than a heavier and richer soil, but the supply, unless exceptional care is taken, is sooner over; consequently, after the first sowing or two, the richest and deepest soil should be given up to them. If this is not done several sowings, unless extraordinary pains are taken, will undoubtedly come into bearing at much the same time, but the crops of the latest sowing will be lighter and of inferior quality, simply because the hot and not unfrequently dry weather has the effect of causing them to bear prematurely. For Peas to be gathered from during July and later the ground ought to be heavily manured, deeply dug, and a good mulching of short litter, or, failing this, grass from the lawn mowers, should be given in summer to prevent waste of moisture by evaporation. Peas are very gross feeders, and rarely have sufficient moisture at the roots during June and onwards.

"SENEX" has a very good selection; all, with one exception (Culverwell's Telegraph), are moderately dwarf growers, but his list does not include a really good late variety. Unfortunately there are but few dwarf late sorts; there are, however, plenty of good tall-growing varieties, which, where suitable sticks are obtainable, are the best. "SENEX" apparently prefers dwarf varieties, I therefore advise him to try Veitch's Perfection and Laxton's Omega, a dwarf form of that unsurpassed late variety Ne Plus Ultra, in addition to those he already has. He having already sowed William I. and Dickson's First and Best, I advise him to make another sowing of William I. together with Culverwell's Telegraph; to be followed by the latter variety and Dr. Maclean; the next sowing to be of Dr. Maclean and Challenger; the next, Challenger and Sharpe's Invincible; the latter variety again and Best of All. If my advice is taken, to follow these a sowing of Best of All and Veitch's Perfection, and another or more sowings of the latter variety and Omega with the above varieties ought under ordinarily good treatment to give him a prolonged supply without any great and much-to-be-regretted "glut," which the proprietors of small gardens can ill afford. I have not as yet had any experience with Sharpe's Invincible, but have arranged it according to its description and parentage.—AN ESSEX GARDENER.

I HAVE been like an "AMATEUR GARDENER" (page 171). I have sown Peas as I found them described in different catalogues, and I have had them come in all together, but the last five or six years I have had them to come in succession. I do not know much about many new sorts. There are a few sorts which I like in the garden and which are liked in the house, therefore I keep to them. This is how I have sown them:—

1st Crop,	Ringleader	Sown	February	7th	Gathered	June	3rd.
2nd "	Laxton's Prolific	"	March	3rd	"	"	15th.
2nd "	Laxton's Supreme	"	"	3rd	"	"	23rd.
3rd "	Dickson's First and Best	"	"	3rd	"	July	1st.
4th "	Hairs' Dwarf Mammoth	"	April	3rd	"	"	18th.
5th "	Veitch's Perfection	"	"	5th	"	"	28th.
6th "	" "	"	June	6th	"	Aug.	18th.

I have sown others besides these. If I want more for later crops I sow Hairs' Mammoth, which I think is the best dwarf late Pea.—A YOUNG GARDENER, *Isle of Wight.*

PLANTING-OUT CYCLAMENS.—Having recently visited the gardens at Whinmore House, West Derby, Liverpool, the residence of W. D. Holt, Esq., I observed a number of Cyclamens worthy of special notice. The plants were two years old. The

seed was sown as soon as it was ripe, and the plants were grown in pots for the first year's blooming, and were afterwards planted out towards the end of May, and lifted in September. Without doubt Mr. F. Roberts adopts the right system of cultivating this lovely winter and spring flower. Many of the plants had five dozen expanded flowers, and quantities more in various stages of development. A good system was adopted in regulating the blooms all over the plant with thin wire; one end was placed in the pot and the other twisted round the flower spike, but not seen above the foliage. This is much neater than using small stakes, and less trouble.—W. BARDNEY.

A NATIONAL CHRYSANTHEMUM SHOW.

Now that the Liverpool growers have distinctly stated that they do not intend to follow up their challenge, I think now is a good time that something may be done for getting up a National Chrysanthemum Society. I do not see why such a Society could not receive as much favour as the National Rose or Carnation and Picotee Societies. If such a Society is started at once I am sure funds could be raised and a schedule arranged, so as to have a good show in November next, to be held at South Kensington; and then if the Liverpool growers are inclined to come and compete, well and good, let them do so. As no time must now be lost, perhaps some of your correspondents would favour with their remarks.—W. E. B.

THE Birmingham and Midland Counties Chrysanthemum Society, being desirous to meet the wishes of various Chrysanthemum growers in the United Kingdom, will give £10 towards extra prizes for a national contest of cut blooms at their next Show, to be held in the Town Hall, Birmingham, on November 26th and 27th, 1879, conditional upon £40 more being subscribed by others in the country interested in the movement during or before the first week in April. If the £50 is subscribed the whole amount will be given in prizes, less 10 per cent. for advertising and expenses. An entrance fee of 5*s.* will be charged to non-subscribers. Post-office orders to be made payable to the Secretary, Mr. Charles Redfern, High Street, Birmingham. Should £50 not be raised the whole amount subscribed will be returned to each subscriber. Those who consider Birmingham a suitable place for the purpose suggested are now afforded an opportunity, under fair conditions, of promoting in a practical manner an object that appears to be desirable by many growers of the Chrysanthemum in various districts.

"A DAINTY BIT OF WARDEN PIE."—From "The Herefordshire Pomona," a sumptuous work by Dr. Hogg, of the celebrated Woolhope Club, now publishing in quarto by Hardwicke & Bogue, London, we take the following. We have reminded the learned author of his omitting reference to the line at the head of this paragraph, from the well-known song of the "Friar of Orders Grey." Speaking of the Pears in the fruiterer's bills of Edward I. in 1292, Dr. Hogg says:—To the above list must be added one of native origin, the Wardon Pear. It was raised by the Cistercian monks of Wardon in Bedfordshire, a foundation of the twelfth century. It was a baking Pear of great repute, and supplied the contents of the celebrated "Wardon pies."

> "The Canon sighed, but rousing cried, I answer to thy call,
> And a Wardon pie's a dainty dish to mortify withal!"
> *Barham*—(Nell Cook, in "Ingoldsby Legends.")

Wardon pies were supposed at one time erroneously to be made of venison and other meats. From the celebrity of these Pears the term "Wardons" or "Wardens" came into common use for all kinds of large baking Pears which required keeping. In an old account book of the household expenses of Henry VIII. remaining in the Exchequer there are the following items among others of the same character:—

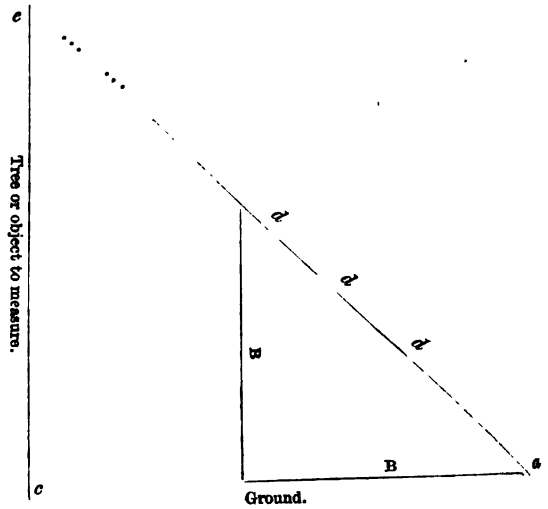
	£	s.	d.
For Medlars and Wardens	0	3	4
Item to a woman who guff the Kynge Pears	0	0	2

Lawson ("New Orchard and Garden," 1597) says, "Hard winter fruit and Wardens are not fit to gather until some time after Michaelmas;" and "The Husbandman's Fruitful Orchard," of about the same date, says, "Wardons are to be gathered, carried, packed, and laid as winter Pears are." The sort now known as Uvedale's Wardon or Uvedale's St. Germain is thought to be an improvement on this Pear. The Arms of Wardon Abbey were "*ar*, three Wardon Pears; *or*, two and one," but the counter seal appended to the deed of surrender preserved among the "Augmentation Records" bears the abbatial arms—namely, "a demicrosier between three Wardon Pears." It is dated December 4th, 29th Henry VIII., 1538.—(*Bedfordshire Times and Independent.*)

[The Editor of our contemporary informs us that on the occasion of a private dinner where some dishes of baked Pears were designated "Warden pies" some of the guests present remarked that they remembered baked Pears from Warden being hawked in the streets of Bedford as "Wardens all hot."]

MEASURING THE HEIGHTS OF TREES.

THINKING it might be useful to some of your readers I send you a simple sketch for measuring tall trees or other objects. There are several ways of measuring trees, but the plan submitted will enable anyone to measure them without damage to the trees. Take three laths, the same as bricklayers use for tiling, and nail them in the shape of the frame; B B must be of equal length; B and *a* being placed on the ground the eye



must follow up the longer lath (*d, d, d*) until it is in a line with *e*, the top of the tree or object you wish to measure. The frame must be placed as level with the bottom of the tree as possible. Should the ground be very uneven you must give and take accordingly. You will see that *a* to *c* is the same length as *c* to *e*, and thus the height of the tree is obtained. —E. COVENEY, *The Gardens, Kenfield Hall, Canterbury.*

FORCING AZALEAS.

IN the Journal on page 156, under the heading "Notes and Gleanings," Mr. Peach states the great difficulty he experienced in forcing into bloom such plants as Azalea indica and Cytisus. Without doubt others have experienced the same difficulty this season; yet, in spite of the cold weather and a sunless season, we do not hesitate saying that greater success can be achieved than Mr. Peach indicates if sufficient forethought is exercised at the proper time. Various plants can be brought into flower by artificial means without the influence of the sun, but the flowers do not possess that substance and solidity which they naturally do under the influence of sun, light, and air.

We have seen Azaleas not only of the indica type but Ghent Azaleas, Rhododendrons such as præcox, multiflorum, Gibsonii, and other plants, refuse to swell their flower buds. The absence of sun is not the sole cause of this. The plants in many cases are placed into heat before they have received that repose which Nature in every case demands. Too frequently do we see plants that are required to be forced early neglected, and allowed to make their growth under almost any circumstances; and much of the early season after blooming is lost before the plants have completed their growth. The growth ought to be completed as early as possible; and then, if the plants are placed outside or in cool houses according to the nature of the plants to receive an early rest, they will, when the time comes for placing them in heat, quickly unfold their blooms. We do not say Mr. Peach has been trying to force

his Azaleas prematurely into bloom, but we have seen too many instances of this kind, and the cultivator only reaps annoyance and disappointment.

We would thus early in the season urge the importance of assisting such plants as Azaleas, Rhododendrons, Deutzias, and all plants required to be forced early next winter or spring, by inducing them to make an early growth.

We carry this out as far as means at our command allow, and we experience comparatively little trouble in bringing plants early into flower. Although the season has been bad, Rhododendron præcox started early in cool Peach houses, also R. multiflorum and R. Gibsonii, have unfolded their flowers as early and as freely as ever we have seen them during previous years.

Nothing can be worse for early vineries than a number of these plants placed in them to make their growth, especially in seasons like this. The excess of moisture caused in watering the plants, &c., proves anything but satisfactory to the Vines. We recommend a house or good pit where much flower-forcing has to be carried on to be devoted to this purpose. This plan will be found both beneficial to the plants and the Vines. The greatest difficulty we have experienced this season is with Tea Roses that were started to produce blooms in November.—W. Bardney.

ROYAL HORTICULTURAL SOCIETY.

March 11th.

According to the arrangements of the Society medals were offered for Cyclamens exhibited at this meeting, and in response the finest display of these charming spring flowers that has ever been brought together was arranged in the conservatory. These constituted a show in themselves, and the splendid varieties showed on the one hand the marvellous improvement that has been effected in this popular flower, and on the other afforded striking evidence of high cultivation. The meeting was thus, by the Cyclamen groups alone, both attractive and instructive. Prominent as another great attraction of the meeting was a magnificent group of Orchids exhibited by Sir Trevor Lawrence, Bart. The vigour of the plants in this group, and the size and freshness of the flowers, riveted the attention of all beholders. These groups with collections of plants from most of the leading nurseries, and a good display of fruit for the season, rendered the meeting a highly successful one.

Fruit Committee.—John Lee, Esq., in the chair. Messrs. Kinmont & Kidd, nurserymen, Canterbury, sent a seedling Apple called Duchess of Edinburgh, raised from crossing Golden Winter Pearmain with Court of Wick. It was a good Apple, but not so good as many varieties at this season. They also sent Uncle Tom, another seedling which had no merit. Mr. McRobie, Broomsberrow Place, Ledbury, sent a seedling Apple which possessed no merit. Messrs. W. Paul & Son, Waltham Cross, sent fruit of Peck's Pleasant, an American Apple of tender flesh and sweet flavour, but it had no great merit, being rather mawkish. Mr. Divers, gardener, Wierton Place, Maidstone, sent three dishes of Apples, consisting of Golden Knob, Green Nonpareil, and Pomme Royale, Ribston Pippin, Hanwell Souring, Blenheim Pippin, and Northern Greening. A letter of thanks was awarded. Mr. Wallis, gardener, Keele Hall, sent a dish of Beurré Diel Pear, which was passed. Messrs. Sutton & Sons, Reading, sent a seedling Rhubarb, named the "Reading Ruby," which was not considered an acquisition. Mr. Lewis Killick, Langley, Maidstone, sent twenty-four varieties of Potatoes. Mr. S. Ford, The Gardens, Leonardslee, Horsham, sent a collection of forty-nine varieties of Apples and one of Pears. These had been remarkably well kept, and the Committee awarded a letter of thanks.

Floral Committee.—G. F. Wilson, Esq., F.R.S., in the chair.

Cyclamens.—As before observed, one of the most striking features of the meeting was the extensive display of Cyclamens. Mr. H. B. Smith, Ealing Dean Nursery, Ealing, contributed quite three hundred plants. Part of the group consisted of pure white, crimson, and red-throated varieties intermixed. The other part of the group was composed of about 120 plants of a pure white variety, all the plants being as dwarf and even as if they had been cast in one mould. They were admirably grown and compact, with good foliage and splendid flowers. Such a collection is rarely seen. It was greatly admired, and a large gold Banksian medal was deservedly awarded to the exhibitor. First-class certificates were awarded to Mr. Smith for Cyclamen Picturata, a splendid variety, having petals 2½ inches in length and nearly an inch in diameter. The colour is satiny white suffused with rose, the base of the petals and throat purplish crimson; leaves small, marbled, and serrated; flower stems stout and a foot in height; plant floriferous and very attractive. Also for Crimson King; flowers medium-sized, colour glowing magenta crimson, flower stems mottled and a foot high; foliage large, round, and smooth; a variety of great promise.

Messrs. Edmonds & Son, Hayes Nursery, Hayes, Middlesex, also staged a very pleasing group of Cyclamens; some of them were very large plants, on one of which were 220 fully expanded flowers, the corm being fully 7 inches in diameter; the whole of the plants were well flowered, and some of the colours were very rich. A silver-gilt Banksian medal was awarded. Mr. R. Clarke, Twickenham, also exhibited one hundred plants of a very highly coloured crimson variety, and about the same number of mixed varieties. The plants were somewhat smaller than those in the preceding collections, but the colours were very bright and striking. A silver Banksian medal was awarded.

We now notice a group of Orchids of extraordinary merit contributed by Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking (grower, Mr. Spyers). About thirty-six plants were staged. It were impossible to speak too highly of the splendidly cultivated and densely bloomed plants; the richness of colouring of some, and the chaste purity of others, were most striking. Three large plants of Dendrobium Wardianum, the centre plant in a pot, the other two growing on blocks, were all alike healthy and grandly flowered. Each plant had about ten vigorous growths, many of them having eight tiers of blooms, or more than one hundred large and fresh flowers on each plant. A large plant of Dendrobium nobile cœrulescens was profusely bloomed and very beautiful; Cypripediums Boxalli and villosum were large and grand. A magnificent plant of Cœlogyne Lemoineana, pure white and lemon throat, was very chaste; Odontoglossums crispum and crispum roseum were very beautiful, as also was a well-coloured plant of Phalænopsis Schilleriana. Dendrobiums crassinode Barberiana, D. crassinode grandiflorum, and D. luteolum, the latter with several pale lemon flowers, were all of them very attractive. Odontoglossums Rossii, Lindleyanum, speciosum, Cervantesii roseum, triumphans, &c., various Cœlogynes, Lycaste Skinneri, the very curious Spathoglottis Lobbii, and Masdevallia polysticta, were all well represented; and exceedingly striking was a fine plant of Cymbidium eburneum with eight grand wax-like flowers; also Lælia anceps alba with two flowers, and the brilliant Lælia harpophylla, the finest plant we have ever seen, and perhaps the brightest Orchid in cultivation. The flowers—there were twenty-one of them—are in form not unlike those of Tritonia aurea, but larger, and are of the most intense orange scarlet imaginable. A large gold Banksian medal was awarded for this fine collection.

A silver Flora medal was awarded to Mr. H. Benham, gardener to the Earl of Stradbroke, Henham Hall, Wangford, Suffolk, for four profusely bloomed plants of Phalænopsis Schilleriana with magnificent foliage; and a first-class certificate was awarded to Messrs. Hugh Low & Son, Clapton, for a remarkable Orchid Cymbidium Lowianum. In growth the plant resembles C. Hookerii. The spike, which was gracefully arched, contained twelve flowers, each 4 inches in diameter. The sepals and petals are pale olive green faintly striped with cinnamon, the throat creamy white, and lip a rich velvety reddish brown. It is novel and very striking. A similar award was made to F. A. Phillbrick, Esq., Q.C., Avenue Road, Regent's Park (Mr. Heims, gardener), for Ipsea speciosa, an Orchid first introduced from Ceylon in 1840. The plant had two bright yellow Dendrobium-like flowers, borne on the summit of a stem 2 feet high, very clear in colour and distinct. The same exhibitor was awarded a vote of thanks for a fine spike and variety of Odontoglossum Andersonianum. Mr. Green, gardener to Sir George Macleay, Bart., was awarded a vote of thanks for Odontoglossum crispum Macleayi with crimson blotches. Mr. Green had also a similar award for some other rare plants; he also exhibited a bloom of Vanda Cathcarti, which had been open for six weeks and had been cut from the plants three weeks. A plant of Maxillaria (Bifrenaria) Buchaniana was exhibited by H. J. Buchan, Esq., Wilton House, Southampton. The throat of the flower is golden yellow striped with brown, petals white, and sepals rose—highly perfumed. The same exhibitor staged cut spikes of Orchids, and was awarded a vote of thanks.

A very attractive collection was staged by Messrs. James Veitch & Sons, consisting of fine fringed red and white Primulas, a very superior strain of Cyclamens exceedingly well flowered, a row of dwarf plants of Aucuba japonica profusely berried, several very handsome and striking Amaryllises. To one of these, Virgil, a first-class certificate was awarded. The flower is very large and of excellent form. It measured upwards of 7 inches in diameter, the well rounded petals being 3 inches across. The prevailing colour is cream with a greenish tinge, the centre of the petals being flaked and spotted with scarlet. It is of the Leopoldi type, and an extremely fine variety. A similar award was made to the same firm for a new and very graceful Fern, Davallia Mariesii, an evergreen species from Japan, and both on account of its hardiness and elegance will prove very valuable. Several Palms were included in the group, also a plant of Camellia reticulata flore-pleno with very elegant flowers, resembling both in the bud and in a half-expanded state Roses in the same stages; also a beautiful plant of Lælia Veitchii with eight richly coloured flowers. Messrs. Veitch further exhibited small plants of a new and highly distinct Dracæna from the South Sea Islands. This plant, which is named Princess Marguerite, is even more elegant in

habit than D. Cooperii, and is coloured almost exactly similar to Aspidistra lurida variegata, two-thirds of the leaves being creamy white, tinted with pink and flaked with green. On account of the evident free growth of the plant and of its clear colours it can scarcely fail to prove valuable for decorative and market purposes. A vote of thanks was awarded for the collection.

From Mr. W. Bull came several attractive Palms, Encephalartos villosus and cycadifolius; smaller groups of Odontoglossums Phalænopsis and cirrhosum intermixed with small Palms, Cattleyas, Lycastes, Oncidiums, &c.; also several plants of the much-admired Dracæna Goldieana. A very large plant of Odontoglossum cirrhosum, with ten spikes; Vanda suavis, with a terminal raceme of flowers; Dendrobium Wardianum, with enormous flowers; and the distinct and chaste double Epacris onosmæflora flore-pleno nivalis. A silver-gilt Banksian medal was awarded for the collection.

Mr. B. S. Williams sent an attractive collection of Amaryllises, well-bloomed plants of Dendrobium Wardianum, a large centre plant of Cypripedium villosum, Odontoglossum Alexandræ, a pan of Dracæna Bausei, a pair of the pretty and neat-flowering Primula denticulata, the new Azalea Princess Maude, very bright; some very dwarf plants of Aucuba himalaica nana, very profusely berried; and a very superior strain of Primula sinensis fimbriata alba and rubra intermixed. A silver Banksian was recommended. From Messrs. Osborn & Son came an excellent group of decorative plants, consisting of Palms gracefully weeping over well-bloomed Rhododendrons; Azaleas, Dendrobium nobile, Spiræas, and several small plants of Cocos Weddelliana completed the group, for which a silver Banksian medal was awarded.

Messrs. W. Paul & Son contributed sixteen boxes of Camellias, which were very much admired. They contained about fifty splendid varieties. Some of the boxes were composed of one variety, amongst which we noted Fimbriata, two boxes of Alba plena, Belle Jeanette, Imbricata, Eximea, Marchioness of Exeter, and the crimson Bealli, very bright indeed. Souvenir Emile Dufresne is a very striking red flower of good substance, with a white stripe down the centre of the petals. Very effective were some fine flowers of Mathotiana and Madame de Strekaloff. Princess Charlotte, Elegans, La Reine, and Montironi were among the best white varieties not named above. Mr. Paul also exhibited a plant of the splendid white Camellia Ninfa Egeria, which is not more remarkable for the great excellence of its flowers than for its compact growth and dark glossy foliage. A silver Flora medal was awarded. Mr. Cannell, Swanley, Kent, sent two boxes of Pelargoniums, very bright and fine; some very dwarf Ageratums Cannell's Dwarf, worthy of its name, and will be valuable for small beds and edgings; and sprays of Fuchsia cordifolia splendens, laden with bright Correæ-like flowers. A vote of thanks was awarded. A similar award was granted to Mr. Blond, gardener to Mrs. Graham Smith, Cranborne Court, for a basket of well-cultivated Neapolitan Violets. A cultural commendation was awarded to Mr. Tidy, gardener, Stanmore, for a large plant of Primula sinensis; and a vote of thanks to Mr. James, Redlees, Isleworth, for fine and highly-coloured flowers of Cinerarias. Several Primulas and Imantophyllum miniatum were sent from the Society's garden at Chiswick; and Messrs. Prentice Brothers, Stowmarket, exhibited samples of their new fertiliser "Florivita"—Life of Flowers—a pale pink powder and perfumed.

NOTES AND GLEANINGS.

At a general meeting of the Royal Horticultural Society, held on Tuesday last, Lord Alfred S. Churchill in the chair, the following candidates were elected Fellows:—Mrs. Basset, Charles Bown, W. J. Browne, C. J. A. Coote, James Douglas, James Groom, Francis George Heath, Arthur Larke, William Lee, H. M. Pollett, Joseph Robinson, F. W. Wood, and Mrs. Wyllie.

—— The annual Show of the Horsham Rose Association is fixed for Tuesday, the 2nd of July.

—— "Wyld Savage" describes the Norwich Rose schedule as the most liberal he has ever seen, the prizes being of such value as to make it worth the while of nurserymen or amateurs exhibiting from any part of England. The date fixed is the 25th of June, but unfortunately the Show is not confined to one day. Nurserymen are only required to show forty-eight distinct varieties, and for this they are offered four prizes; the first £15, the second £12, the third £9, and the fourth £6. For twenty-four single trusses they are offered prizes of £10, £7, £5, and £3 respectively; and for twelve Tea-scented or Noisette, £3, £2, and £1. Amateurs are required to show thirty-six for the head prizes, which are £10, £7, £5, and £3. For twenty-four distinct varieties £7, £5, £3, and £2 are given. For eighteen distinct a cup is the first prize, and £3, £2, and £1 the others. For twelve Tea-scented and Noisette Roses the same prizes are offered to amateurs as to nurserymen; while for six Roses Mr. William Paul offers two copies of his work "The Rose Garden," one of which having coloured plates he values at one guinea, the other at half a guinea. There are also valuable prizes offered for stove and greenhouse plants, cut flowers, fruit, and vegetables. Mr. E. A. Field of Upper Surrey Street, Norwich, is the Hon. Secretary. That success may attend such a spirited venture will be the wish of every Rose-grower.

—— The Council of the Royal Horticultural Society having taken into consideration, at the meeting on Tuesday last, an application from Mr. Quilter of Birmingham, that the Provincial Show of the Society should be held at the Lower Grounds, Aston, during the present year, it was resolved that in view of the several applications which from time to time have been made to the Society for the purpose of holding provincial shows, it is resolved that no such application be entertained unless it be accompanied by a requisition numerously signed by the gentry and residents of the neighbourhood who would be prepared to support such a requisition by practical assistance.

—— We learn that His Royal Highness Prince Leopold has consented to become for this year the President of the Southampton Horticultural Society, in succession to the late Hon. Eliot C. Yorke, who took so deep an interest in it, and through whose influence the patronage of Prince Leopold was secured last year. Since then Her Majesty the Queen has been graciously pleased to accede to the request of the Committee, that the Society in the future be known as "The Royal Southampton Horticultural Society." A liberal schedule is announced, and good exhibitions are anticipated.

—— The Council of the Royal Horticultural Society have granted a vote of £10 to the schedules of the Pelargonium Society, the Auricula Society, and the Carnation and Picotee Society respectively.

—— Bright spring-like days have at length arrived, and the long-retarded buds of deciduous trees are swelling with great rapidity. Such early flowers as Crocuses, Snowdrops, and Winter Aconites are imparting a ray of cheerfulness to gardens that have so long been dreary. It is several years since gardens have been so destitute of verdure during the middle of March as is the case this year. There is scarcely the faintest tinge of green to be seen on deciduous shrubs, Lilacs excepted, which are the first to be awakened from their long cold rest; such spring flowers as Wallflowers, Myosotis, and autumn-sown annuals have been extensively killed, and the vegetable quarters present an aspect of barrenness quite unusual for this period of the year. The silver lining to the cloud is the hope generally entertained that the retarded blossoms of fruit trees will escape the spring frost, and that a golden harvest of fruit will follow.

—— We have recently tested some dried vegetables which have been submitted to us by Mr. Theodorus Alkemade, 3, Melrose Terrace, Stamford Road, Tottenham, who is now on a visit to this country from Nordwyk, Holland. The vegetables have been dried by a process which has been adopted by the Alkemade family for upwards of a century, and they are in great repute on the Continent. During the drying process, "nothing," says the proprietor, "has been added to the vegetables, and nothing, except water, taken from them; and when cooked they assume their normal colour, and to a very large extent their flavour." This we have found true. The vegetables we have tried were Scarlet Runners, cut ready for cooking; Dwarf Kidney Beans, uncut; and Broad Beans, small seeds of the Mazagan type. In appearance the dried vegetables are uninviting, being small, hard, and shrivelled, but after being soaked in water for six hours their change is marvellous, their colour returning and their bulk increasing in a very marked manner. When cooked we were surprised by their excellence. While not being equal to freshly gathered vegetables they approached them far more closely than we expected, and sufficiently so to be acceptable as a change, and when fresh vegetables of the same kinds are not obtainable. The vegetables, such as the cutting of Scarlet Runners, have hitherto been prepared by hand, a necessarily tedious and comparatively expensive process, but machinery is now projected for their preparation, which will no doubt reduce the cost. Although as vegetables out of season they are not particularly costly now, yet if they can be cheapened they will almost certainly be in large demand for consumption both on land and sea. It may be noted that Dwarf Kidney Beans

popularly termed French Beans, are not usually sliced on the Continent, but varieties such as the "Princess" are grown, and the pods are cooked whole after the beans are formed in them. The dried specimens are of this kind, and on that account are not, we think, likely to be popular in England.

—— CIRCULAR STEPPING TILES of dark Staffordshire clay 12 inches in diameter, 2 inches thick, and grooved in lines are, writes Mr. Symons, convenient without being unsightly for Rose and other beds and borders. They are preferable to turf walks, as they are always clean and dry, and can be moved at any moment when manuring or dressing the soil. Round tiles are preferable to square ones. The stepping area is of equal dimensions in every direction, and they look better and never offend the eye by being out of line.

—— A CORRESPONDENT submits the following evidence of the HARDINESS OF CHESHUNT HYBRID ROSE:—"Many Roses here (Ireland) are much injured. A Triomphe de Rennes trained against a south wall is nearly or quite destroyed, while Cheshunt Hybrid against an east wall has not suffered in the slightest degree. Both Roses are on Manetti stocks." Cheshunt Hybrid is a distinct and useful Rose, and will be extensively grown when its hardiness is established.

—— WHEN a term of brilliant sunny days follows suddenly on a long period of unwonted dulness there is always a danger of early Vines, Cucumbers, Melons, and plants in forcing houses being INJURED BY SCORCHING. Growth made wholly under the influence of fire heat and a corresponding deficiency of light is destitute of tissue, and speedily succumbs to the action of the sun. Experienced gardeners are aware that the admission of large volumes of air so as to reduce the temperature of the houses is not a safe practice to adopt under the circumstances named, as that practice only results in still further transpiration of the foliage; they rather have recourse to a thin film of shade, such as tiffany, "summer cloud," or a light sprinkling of limewash to the glass, so as to afford the twilight that is necessary to prepare the foliage to endure the full force of the mid-day sun. This hint may be seasonable to amateurs and young practitioners on the eve of summer, when danger from scorching is more or less imminent.

—— THE *Californian Horticulturist*, which is now edited, and apparently with considerable ability, by Mr. C. H. Shinn, observes that CLERODENDRON AROMATICUM is largely grown in American nurseries, many of which "have quite a stock of this fragrant and free-blooming plant. Its habit of blooming when quite small is a great recommendation, and the double lilac-coloured flowers, borne in close heads, make this the best of the Clerodendrons. We think no plant could be better for a house or window."

—— WE have received Part I. of Messrs. Cassell's new periodical entitled "FAMILIAR GARDEN FLOWERS." The literary portion is written by Mr. Shirley Hibberd, and the chromo-lithographic plates are done from the drawings of Mr. T. Edward Hulme. We have no hesitation in saying that both departments are very well carried out. The plates in this part are the Indian Cress and the white Lily.

—— A CONVENIENT mode of FERTILISING THE BLOSSOMS OF PEACH TREES we have just seen adopted by Mr. Ollerhead in the gardens at Wimbledon House. The appliance is as elegant as it is effectual; it consists simply of a soft plume of Pampas Grass, which with the long stem attached enables the entire trellis of a large house being lightly brushed over in a few minutes. The early Peach house, the trees of which were in bloom during the dull cold weather of January and February, contains such a profusion of fruit that much thinning has been resorted to. The good results of the practice adopted afford sufficient evidence that no better mode of distributing the pollen of fruit blossoms need be wished for than the employment of a soft silvery plume of the Pampas Grass.

—— "THERE is more money in the DUCHESS OF OLDENBURGH APPLE with me," writes an American fruit-grower, "than in any other sort: 225 trees, now five years planted, average nearly a bushel each, and bear every year. Fruit uniformly fair and large, many specimens being 14 inches in circumference." This useful early Apple is proving a favourite in many British gardens.

—— A SUPERIOR Cherry, comparatively little known, is cultivated on the shores of the Lake of Constance, notably at Lindau, Tettnang, &c., and is called the EBENTER CHERRY. It is distinguished for its firm flesh, large size, and small stone; it is also noted for its superior travelling qualities. Being a late bloomer a plentiful crop is invariably the result, and as it ripens after all other table Cherries are over, it is esteemed quite an acquisition.

CURRENT TOPICS.

ROSES—PEAR ELECTION—GLASS FOR VINERIES—DIGGING—APPLYING LIQUID MANURE.

I VENTURE on the spur of the moment, after reading the *Journal of Horticulture* of March 6th, to make a few current remarks, and to answer certain questions.

First as to scentless Roses. Mr. W. Symons does not in the least alter my opinion, or that of most rosarian judges, simply by quoting a paragraph of Mr. W. Paul's. I do not wish to cast any slight upon Mr. W. Paul's opinion, but I only aver that the recent Rose election of nearly fifty experienced growers and judges does not bear it out. We do not want to go back to flat Roses with irregular petals like Baronne Prevost. Duchess of Sutherland may be very sweet, but has nothing to commend it for form. Baronne de Rothschild though scentless is far too perfect a Rose to be eliminated for that error, and as a second bloomer and for hardiness of constitution will bear comparison with most varieties. Paul Neyron can hardly be placed before any rosarian as a model Rose unless size is the only point to be aimed at. No doubt the raisers of Roses must aim at excellence, their mistake too often is to think too much of their own productions. Sweetness is a great merit, but it adds no strength to the constitution, and there is no proof that the Roses introduced, as a rule, during the last fifteen years are inferior to those of the previous fifteen.

Again, with regard to tenderness; it is very singular, as I have remarked before, that the young wood of Roses from the base will endure more frost than older. I have noticed it during every severe frost since January 3rd, 1854. This year old and matured wood even against a south wall is killed, while younger wood on the same plant from the base is alive, and I could point out the same in several hundred instances. My theory is, that the sap vessels are injured by the expansion in freezing, and that the younger wood having a softer pith in the centre gives way and enables the bark to resist the expansive force of extreme frost.

To turn from Roses to another subject, Pears. Does "J. S., *East Riding*," consider the difficulty of tabulating and returning lists of Pears from every soil and climate, and dividing the lists into wall fruit, pyramid, bush, espalier, standard, &c.? The author of the "Fruit Manual" is also Editor of the "Year Book," and issues lists of all large gardens with their gardeners, and is also well acquainted with the best amateur judges, and most of those who are qualified to give any opinion have tested the newer sorts. The labour of the returning officer has to be considered, but it would not prevent "J. S." from sending in a return of twenty-four sorts if he wished.

The next thing I turn to is a question asked, "What is the sort of glass most suitable for glazing vineries?" I answer, The purest white plain glass, 21-oz., thick, even, flat, and strong. Avoid all glass that has any distinct tone of colour. Have small laps, not more than a quarter to three-eighths. Bed in putty, but scrape all off outside, and paint with white lead over the putty, flattened outside of the glass on a level with the glass. The glass is kept in its place by a flat copper nail or a shoemaker's sprig nailed into the projecting portion of the sash-bar or rafter of the roof. If shade is required a wash outside in very sunny weather of whiting mixed with old milk and flour, with a very slight portion of plaster of Paris (sulphate of lime) added as it is used, will stand when dry the severest thunderstorms, and can be washed off again by friction and water when necessary.

Another question asked by "A YORKSHIRE AMATEUR" is "When to dig?" A golden rule is, never dig the ground if you can avoid it when the soil is too wet or too heavy, so as to stick to the tools and run together into lumps by being trodden on. Soils differ so much in their character it is very difficult to lay down any general law; but whenever a crop is off and the land cleared, the sooner it is manured and dug over when the weather is propitious the better. Some land may be dug even after heavy rain and wet weather after one dry day, when other land had better not be touched till after a week or ten days of dry weather. As a rule it is better not to dig during frost; but heavy unctuous loam or clay is better for autumn digging in dry weather, well-decayed vegetable manure with

ashes being added. No greater mistake is often made with Potatoes than planting the sets in the middle of fresh manure, and then earthing up; and the same is true of nearly all crops. The manure should be well decayed or fermented beforehand, care being taken that it should not be exposed to too much rain, and that the liquid manure should be saved in tanks or from time to time put on to the heap of manure as it is turned over; but no vegetables like a great lump of wet manure to grow in, and the object of cultivation is to subdivide it.

I have no doubt, as "A. N. G." remarks, that liquid manure may be applied to all fruit-tree roots, Roses, &c., in winter, provided the frost is not too severe at the time. There is no real dormant state of the deeper roots of deciduous trees, or of plants, or shrubs during winter; in fact it is nothing but the winter's rain in many of the mountainous Vine districts in the south of France and elsewhere on the Continent that enables Vines to endure the dryness of the summer sun on the south side of an arid hill.—C. P. PEACH.

SYERS'S STOVE FOR THE MILLION.

WE have seen this little contrivance for warming frames and pits, and consider it both very cheap and very efficient. That which was submitted to us was not much larger than a good-sized stable lantern, and it does its work very much in the same way as those other paraffin stoves that have become so common of late years. It is, however, the cheapest and the simplest of those contrivances that we have seen.

Fig. 26.

GLASS FOR VINERIES.

YOUR correspondent "B. G., *Co. Down*," wishes to hear experiences of what is the best glass for vineries. I have no experience of the "violet ray." I have, however, formed from experience a most decided opinion as to whether clear sheet or rough plate glass is best for vineries. I think Vines require all the sun that can be had for them in our climate. A very good example has been under my notice for these last eight years.

A vinery is in two divisions, one being planted with Hamburghs and the other with two or three late sorts. The former was glazed with clear glass, and the Vines are always a success both as to crops and finish of fruit. The other division was glazed with rough plate, and the Vines never seemed to do any good either in producing fruit or sound healthy growth. The shoots had the appearance of being "drawn," and altogether had a weakly unhealthy look.

I have also seen other cases of Vines not thriving under this sort of glass. I think rough plate glass should be used for nothing but for such plants as require shade the greater part of the year, such as Ferns, Foliage plants, Orchids, &c. Some want to make us believe that rough plate glass does not obstruct the light so much as would make much difference, but I think if the fact were fairly tested the difference would be found to be considerable.—R. INGLIS.

LILIUM AURATUM.

THIS has been a favourite plant of mine ever since I first saw it exhibited at one of the London shows some fifteen or sixteen years ago, and I am surprised to find it is not more largely grown as a window and garden border plant. It is of easy culture, hardy, and is sold at a price within the reach of all who have a garden. This certainly is the queen of hardy Lilies; it has a majestic appearance among other plants as a pot plant, and is equally useful for border decoration. I have seen some very fine specimens flowered in pots; one had twenty-five blooms on a stem, and several from sixteen to twenty. The best example of culture I have seen was at Quarry Bank, Allerton, near Liverpool. Mr. Smith, the gardener there, told me he had it first as one bulb. He never let it become dry or shook it out, but kept it shifted on in a mixture of loam, leaf oil, and silver sand. If some of the readers of the Journal will state the largest number of flowers they have seen on a stem I shall feel obliged to them for doing so, as I feel interested to know to what perfection they can be grown.

I quite agree with Mr. Taylor respecting the cause of imported bulbs not growing. I believe them to be very impatient of drought, and no doubt are sometimes a long time kept dry before planting. Last year about February I had a hundred imported bulbs. When they arrived they looked very much damaged. I had them all potted except two, which looked too far gone, in from 4 to 6-inch pots in good turfy soil and leaf soil just moist enough for them without watering, and then treated them the same as we do Hyacinth bulbs. They stood out on the open ground and had about 4 inches of soil placed over them, and an old shutter to keep the rain off till they commenced growing. When the stems were about 3 or 4 inches high I had some holes dug about 18 inches square, and filled with peaty soil rather sandy, with some fine soil to plant them in. I put three plants in a place, and out of ninety plants about eighty bloomed. The first opened during the first week in August, and others kept following up to November. One or two did not open, as they were caught by the frost. The plants were about 4 feet high, and had from one to eight flowers on a stem, most of them three and four. Several had two stems. They must have been seedlings, as there were scarcely two alike in form or colour. Some were nearly white; some very large and beautifully spotted with a dark plum colour; some in shape and size were much like the old Lilium giganteum, and some were much more strongly scented than others. I labelled most of them with the number of flowers on a stem, the colour and date of flowering, with a view of seeing if the difference in dates this year will be the same. The bulbs were planted in the herbaceous border without any covering whatever. I examined two or three bulbs before the winter set in: they were well matted together with fine healthy roots, and pronounced to do well this season.

Those who want to grow them in large pots or tubs would do well to begin with one single bulb on account of having the stems to bloom all at one time. I would recommend them to be planted in rather decayed turfy loam, leaf soil, sand, or peaty soil without manure of any kind, but top-dressed with good decayed manure or cow or sheep dung as soon as they begin to show flower buds, and be very cautious about watering or using artificial manures. The green fly will attack them sometimes just as they begin to show their flower buds.—G. C., *Warwickshire*.

MOISTURE FOR GATHERED FRUITS AND CUT FLOWERS.

TWO or three seasons ago, when Pears were plentiful and storage room scarce, we were glad to use for that purpose the shelves in a large underground vaulted cellar. The cellar had a large window facing the north, which was always open, though the opening was covered with perforated zinc and the door of the cellar was never shut.

The few varieties both of Pears and Apples, which were carefully deposited on the open shelves as closely as possible without touching each other, ripened in almost every instance without shrivelling and without decay; and the specimens looked so fresh and plump that one was almost tempted to think that they must have grown in their retreat!

Before bringing a dish to table, especially the Pears, we usually placed them where the temperature was the same—about 60° night and day—to thoroughly warm the fruit to the core and bring out the flavour of the fruit. In severe frost the cellar treatment might not have succeeded even with the aid of light woollen coverings over the shelves; but this experience is only that of plentiful Pear seasons and during exceptionally mild winters.

Cellars, too, are a great help in keeping our cut flowers in good condition. Where there is not the health or the inclination to be in the garden very early in summer to secure flowers in their dewy freshness and buds in their first prime, an hour or two's banishment to the cellar, underneath the shelves and as far from the light as possible, before setting up bouquets or table decorations, wonderfully stiffens the stalks and makes one able to dispose the flowers more true to their natural habit of growth.

And who, even where flowers are most abundant, has not felt sorry at seeing how short-lived they often are? Flowers in rooms soon lose their brilliancy, and delicate creepers their curves, and hang limp and lifeless from the glasses or tazzas.

Removed to the cool moist cellar by night and sprinkled with the faintest shower of tepid water as well, the little extra trouble is more than repaid by the length of time our favourites last when they have been thus considerately treated.—A. M. B.

FONTAINEBLEAU.

THIS palace of the French monarchs was erected and the gardens arranged early in the eighteenth century by the celebrated architect and garden designer, Le Notre. The Rev. Samuel G. Green, D.D., thus writes of them :—"Louis XIV. at the time domin eeredover France. His vanity and ambition, however, conferred this benefit upon his country, he became a munificent patron of the arts and sciences. Horticulture participated in the general encouragement. His father had commenced on a diminutive plan the Trianon, but Louis XIV. ordered the creation of the stupendous and splendid gardens of Versailles, Marli, and Fontainebleau. Partaking of the spirit of the monarch, the nobles and wealthy members of the community aimed at distinction by the display of horticultural taste. Among these, the gardens of St. Cloud, belonging to the Duke of Orleans, were particularly to be distinguished. The best scholars of the country united in lauding the prevailing taste, and the praises of horticulture resound in the verses of Rapin and Boileau. Quintinie was the prince of French horticulturists.

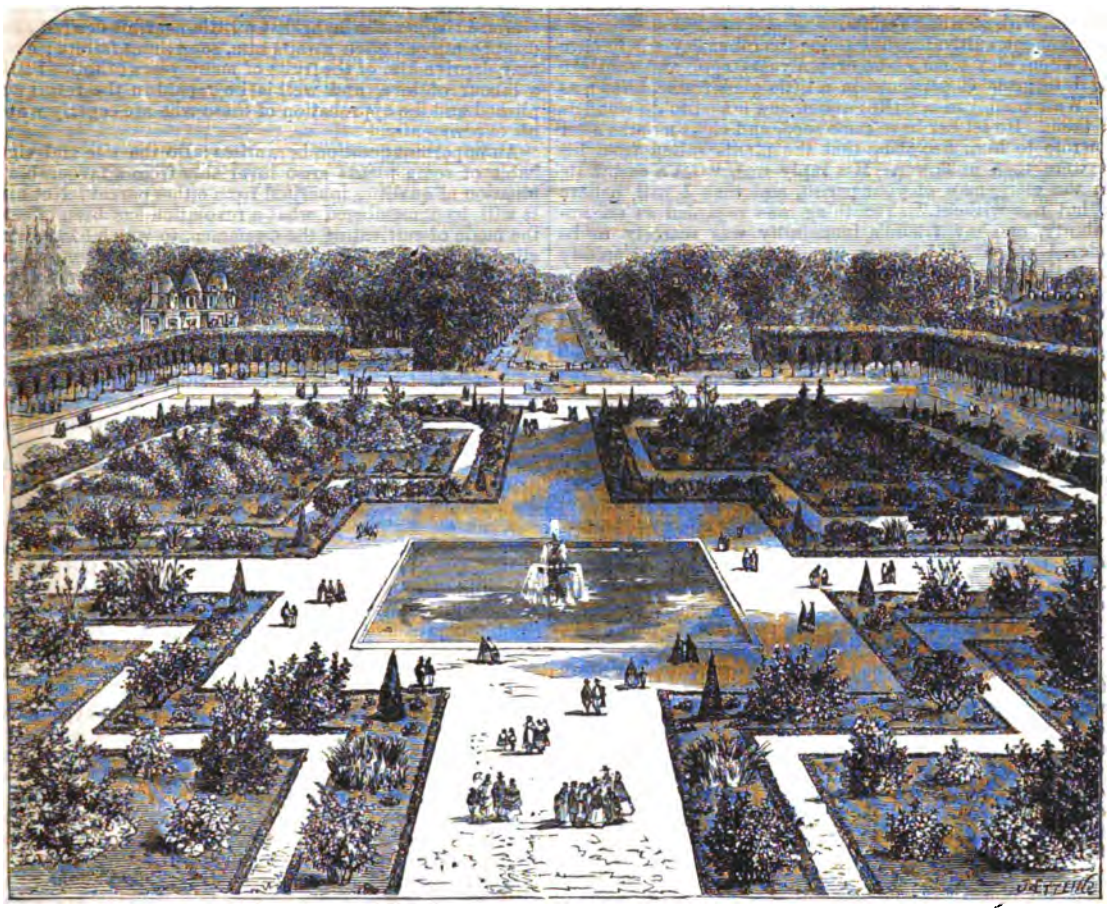


Fig. 27.—GARDENS AT FONTAINEBLEAU.

"The gardens will fascinate the lovers of elaborate arrangement and orderly primness, but are not otherwise remarkable except for their great fish ponds. On the whole, they scarcely repay a walk round, especially when outside them stretches the magnificent forest, with its heathery slopes, dark Fir woods, vast expanses of green sward planted with Beech and Oak, and a surface broken into wild, picturesque gorges by 'the scars' and rocky projections of the sandstone. Quarries of this stone, which is largely used in paving the streets of Paris, have been excavated on the skirts of the forest, and employ a large number of workmen. The excursions through the undulating expanse of woodland, fifty miles in circumference, and covering an area of 42,500 acres, are of the most fascinating variety; one might wander for days, meeting new beauties at every turn. For the guidance of pedestrians, a map of the forest, a perfect model in its way, has been prepared by Sylvain, a true forest enthusiast—a retired soldier, M. Denecourt, who has devoted the latter part of his life to exploring every part of the neighbourhood, and to making its beauties more accessible. Under his direction footpaths have been cut to all the most picturesque spots; and blue arrows painted on trees at every dubious point make the way plain, so that even 'children in the wood need not here be lost."

SOIL DIFFICULTIES—LIQUID MANURE IN WINTER.

MR. LUCKHURST has, I think, opened a subject which deserves more attention than it receives. Three years ago I had for soil in my garden a very stiff clay, indeed so stiff that when it was being dug the spade had to be dipped into a pail of water each time before inserting it into the ground. Now the soil is quite light and can be turned over easily with the fork (I have discarded the spade for digging according to advice given in the Journal by one of your correspondents, I think Mr. Wm. Taylor, and shall not return to it again), and all I have done to the ground is to mix ashes with it and give it a slight dressing with lime and soot. This I think the best remedy for any clayey soil.

I entirely agree with the remarks (page 176) made by "A. N. G." on applying liquid manure in winter. I have always found a beneficial effect to plants grown upon ground

that had had liquid manure in winter. As I use frames in the spring heated with dung I always have the manure laid in heaps on the beds so as to allow of the washings from the heaps to soak into the ground, and I have never regretted so doing. The first year I adopted this practice I found a marked difference in the plants grown.—W. E. B.

THE CYCLAMEN.

[THE following notes on the cultivation of the Cyclamen by Mr. S. Jennings, F.L.S., are extracted from the Royal Horticultural Society's Journal. Previous portions of Mr. Jennings's paper appear on page 285 of vol. xxxiv., and page 172, vol. xxxv.]

IN the matter of cultivation a complete and utter change has of late years been effected in the management of this plant, and with startling results.

An eminent cultivator said to me the other day a lady once called upon him some eight or ten years ago, and said she wished to grow C. persicum in a little glass frame, known as the "Waltonian," in a sitting-room, and hoped to do wonders with them. He let her have some seed, and eight months after she wrote to him, declaring that the plants raised from his seed were then in flower. His reply was, "Get a certificate from the clergyman of your parish, and then I will believe you, but not without." The thing was regarded as an impossibility, and my friend's incredulity was scarcely to be wondered at. That, however, struck the keynote. Rapidity of growth, no cruel drying process, by which the very life blood, as it were, of the plant was driven away. Rest; but with sufficient moisture to keep the corm plump, and the foliage fresh, but no more, or injury will ensue. It is the happy medium that must be struck, that when the plant is ready for flowering there must be no lost ground to recover, no exhausted strength to recoup, the progress must be regular, onward, easy.

The soil most recommended for the Cyclamen is a compost of fine loam and leaf mould, about equal parts, with sufficient silver sand to keep it free. The seed should be sown in shallow pans, well drained; sow as soon as the seed is ripe—say August or September, though some recommend waiting till November and December. Keep the pans in a temperature of 50° until the seedlings appear, when they should get as much light as possible, or they will become drawn and weakly. When ready prick them out into 5-inch pots, putting six or eight into each pot, and in spring repot them singly into 60-size pots. As the sun becomes more powerful they will need shade, though still requiring all the light they can get, minus the direct beams of the sun. In June they will have made good progress, and will require shifting into larger pots and placing in a favourable position where they can enjoy plenty of light, not sunlight, except in the early morning or afternoon, and regularity in watering, especially in the matter of overhead syringing, which is most beneficial. As the days draw in the plants will want all the light they can get. Protect from early frosts, keeping the temperature to about 45°, and fresh air whenever practicable.

The earliest flowers always show the best colour, and they may be looked for as early as Christmas, but they do not come into general bloom till February and March. After blooming they will need shade, and the following summer the plants will cease to put forth fresh leaves, then less water must be given until growth is again started, and so the same plant will continue to bloom year after year, though the usual practice is to throw away the tubers after the third or fourth year, as the quality of the flowers deteriorates with age.

The characteristics of the Cyclamen which it is desirable to improve are:—I.—The plant; its habit, compactness of growth, elegance of form, freedom in bloom. II.—The leaves; variegation, or strength of colour. III.—The flower; colour, size, fragrance.

The efforts of various of our well-known cultivators of this plant have been directed into different channels. Mr. Little of Hillingdon has striven to produce the finest colour, the deepest crimsons and purples, and his efforts have been duly recognised by this Society, who have awarded him first-class certificates for several of his most successful examples, as for instance, Queen of Crimsons, Ruby, Purpureum, Prince of Purples, and Purple Gem, which would be difficult to surpass in this his speciality—colour.

Again, Mr. Hook of Bridgfield is aiming at a combination of good quality blooms, with silver-margined foliage. In this, so far as the foliage is concerned, Mr. Hook has succeeded in raising a strain with beautifully distinct foliage, deep green in the centre, margined with a distinctly lighter colour, but as yet there is much room for improvement in the flowers.

Mr. Edmunds, of Hayes Nursery, another persevering cultivator, has given his attention to size and form, and he and Mr. Williams and others have exhibited plants with flowers of great size, combined with elegant habit and fair colour, but as yet there seems to be a difficulty in raising a variety of large flowers coupled with the great freedom of bloom of the smaller varieties. Then, again, as to colour, none of the largest types are equal in intensity of colour to Mr. Little's best strains.

As regards the possibilities of the Cyclamen, the past few years have seen great advances, but there is much yet remaining to be accomplished which will take time and perseverance. The wonders effected by hybridisation are not always sudden in their achievement; year after year of patient crossing, each season bringing the hybridist a little near his desired climax; disappointment often awaits him, sometimes failure; accident may deprive him of the fruits of many years of toil. Still, it is a labour of love, and well is he repaid in the result accomplished and the approbation of those who are eagerly watching his experiments.

An important question here arises: Do the size and vigorous habit of some plants arise invariably from a favourable combination of qualities inherited from either parent? Not always. It will be remembered what a revolution has been effected in the mode of cultivating the Cyclamen, to which I have already alluded. Under the old drying method the bloom was small and the habit cramped. Now, however, the plants are expected to bloom the first year, the seedlings have been helped forward vigorously, there has never been the slightest check; the surroundings, soil, temperature, light, air have been regulated so as best to suit the plant's requirements, and in consequence fine succulent corms have been produced which have yielded the magnificent heads of stately bloom, larger and stronger than have ever before been seen, whilst astonishing profusion of bloom is achieved after a few years. Mr. Little writes to me that upon one of his plants ten years old, measuring 8 inches across, have been counted at one time as many as three hundred flowers! A circumstance worthy of being recorded.

What we wish to see is a combination of the largest size coupled with the richest colour in the flowers, the compactest, neatest foliage, emarginate, zoned or otherwise, the most graceful habit, and withal the most vigorous and abundant bloom and definite fragrance. Some day doubtless all this may be combined in a single plant, but much remains to be done first, for with the size of the flower gained freedom of bloom seems to be lost, probably on account of the necessarily massive peduncles taking too much strength out of the roots.

Striped and spotted varieties of a permanent type have not as yet, I believe, been achieved; the variegation has been partial, not decided, and it is not by any means the same in different seasons and under different conditions. With a damp close atmosphere some plants will spot more readily than others. It has also been observed that some plants bloom earlier in the season than others, and this character appears to be permanently attached to them.

A few words in conclusion on the subject of the artificial fertilisation of the flowers. For this delicate operation we must first have a favourable day, not too early in the season, lest the pods damp off, which they are liable to do if the cross is effected earlier than February. A bright sunny day is best, when the pollen seems to possess more fertilising power, being doubtless affected by a more or less humid state of the atmosphere. In nature it is doubtful if the fertilisation of Cyclamen is, as a rule, effected by bees or insects, for there seems to be a natural tendency on dry days for the pollen sheath to burst and scatter the minute particles in the air, where they float with the breeze, and may easily be observed if a plant be shaken in a darkened room into which a ray of sunlight is admitted; and as the smallest particle of pollen coming into contact with the stigma of the seed-bearing plant is quite sufficient to secure fertilisation, it will readily be seen that when it is desired to operate artificially the seed-bearing plant must be moved away from all the rest. The flower should not have been more than one day open, as in spite of the utmost care insect visitors may possibly have been before you and spoilt all your nice calculations. It is undesirable to fertilise more than six or eight flowers on any one plant; the rest should be cut off so that the full vigour of the plant may be concentrated upon the seeds, and in proportion so will they be plump and full, and afford fine vigorous young seedlings.

Finally, I must just allude to nomenclature. Numerous beautiful seedlings, the results of patient experiments, are being brought up from time to time to our spring shows, and we are delighted at their appearance, but it is a pity that botanical names should be attached to them as though they were new species. They are nearly all varieties of C. persicum, and it would be far better if such improved strains should receive florists' names, which are quite distinctive and do not confuse the student.

I must also acknowledge my indebtedness to Mr. Little of Hillingdon, to Mr. Tyerman, to Mr. Atkins, and to Mr. Barr, who have afforded me much valuable information which has been incorporated in this paper.

There are still several points in connection with the specific distinctions of the genus Cyclamen which have yet to be satisfactorily cleared up, these may yet form the subject of a further communication at some future date.

WHEN SHOULD WE DIG?

"A YORKSHIRE AMATEUR" in his list of queries under the above heading may not inaptly be said to have gone to the root of the whole theory and practice of kitchen gardening. The last query by your correspondent—"Does the rule in digging, whatever it is, hold good for all soils?" I find it advisable to first notice. It has been recently suggested in this journal that all writers should state the county in which they reside. I go farther, and suggest that when writing upon the cultivation of gardens generally, or of any particular class of fruit trees and vegetables with which they have been successful, they give a brief description of both the soil and subsoil with which they have to deal. The soil in nearly every county, and also in the districts they contain, varies considerably, frequently requiring totally different treatment, no rule therefore, I think, holding good for all soils. This I will endeavour to prove, my remarks of necessity being replies to the other queries of "A YORKSHIRE AMATEUR."

The soil in the Wealds of Kent and Sussex consists principally of a strong retentive clayey loam, out of which the iron sand not unfrequently crops. A more difficult soil to manage I think it impossible to find, and yet it is made to produce excellent crops, including some of the best Hops grown. In this instance it is of the greatest importance that the soil be turned up roughly in the autumn, or as soon after as possible, to the pulverising influence of frost, wind, and sun. After this it requires great judgment to manage it, as when wet it is very tough and unworkable, and when too dry going as hard as bricks. A medium state is selected, and the whole is well broken with tools peculiar to the district—two-tined hoes. Soils at all similar to the above cannot be thrown up too roughly, choosing dry or moderately frosty weather; not, however, digging-in any badly frozen soil, as that would have the effect of making it still more cold and unkindly. In the same counties, more especially Kent, there are districts where the soil resting on a chalk subsoil is very light and flinty, which may be dug and worked at almost any time, and into which I should not hesitate to dig either snow or frost. Neither this nor the very light and gravelly soils abounding in the western counties—notably in North Wales, where the rainfall is very heavy and the natural drainage very quick—should be dug till close upon such times as they are wanted, or more harm than good ensues from the operation.

It is not, however, with the treatment of either the extremely heavy or light soils that the most uncertainty exists, but rather with the soils of medium texture. In some parts of the south, the midland, and more especially the eastern counties, where the rainfall is much lighter, the soil is much stiffer, at the same time is so constituted that if well managed it is very fertile. With such a soil it is my good fortune to have to deal. After a fair trial I have arrived at the conclusion that the best time to dig it is a few days before planting or sowing, selecting an apparently dry time for the operation, as should the ground once become saturated, especially if it has been double dug, it is some days and even weeks before it is again in workable order. The crust of autumn-dug land undoubtedly becomes well pulverised during the winter months; but, on the other hand, that portion of the soil that has to receive the roots—on which, therefore, the well-being of the plant depends—very frequently gets very cold and wet, and at planting time goes together into a cold inert mass—a fact too often overlooked, especially by those who, thinking seeds of plants ought to be sown at a stated time, pay but little regard to the state of the soil that is to receive them. In order to avoid this mistake, where heavy or medium soils have been autumn-dug I recommend, when likely soon to be wanted, that the land when dry be dug again, as the present drying March winds in all probability will do the soil that is brought to the surface as much good as the frost has that which is turned in, thus bringing the whole to a good depth into excellent working order.

Medium or light soils autumn-dug soon get broken up, and in this loose state absorb more moisture and are washed by the rains, thus losing much more of the soluble manures than is the case with the firm undug soil. I am convinced that much manure is really wasted in consequence of being buried so long before it can be of any benefit to the crops, and on few soils can I recommend an autumn application. My reasons for this I will briefly summarise. If applied to light, sandy, or gravelly soils, which are often very hungry, it would be decomposed and the virtues washed away long before they could be taken up by the plants. Although this does not apply in such a marked degree with some medium and heavy soils, there is still not only a waste of strength and the warmth it imparts, but it also interferes with their proper working. It most likely would be asked, What would you do with the manure if it is not to be dug in? My advice is to do exactly as many good farmers do—make a mixen. This is done by laying a good foundation of soil for the fresh manure, this is thrown on up a good height; if dry, watered with liquid manure, if convenient, the sides sloping, and the whole covered with soil. After it has undergone sufficient fermentation to make it workable, the whole is turned and well mixed and again covered with soil. Frosty weather is selected for wheeling or carting it on, and the heaps whether large or small are again covered with earth. By following this plan there is no waste, but rather an increase in the bulk and value of the heap, the soil used for covering and also incorporated by turning absorbing much ammonia that is usually lost by fermentation. Artificial manures no doubt are very effective, but on light hungry soils or in districts where the rainfall is light (as with us) are, I am convinced, of little value unless used in combination with the manure heap.—W. IGGULDEN.

YOUNG GARDENERS AND THEIR DIFFICULTIES.

I HAVE no doubt many an old gardener who has overcome difficulties that young men have to contend with when first entering as head gardener, to keep up a supply of vegetables for a large family, will endeavour to render "YORK" assistance. I am one who has had many a sleepless night, and I came to the conclusion that I must adopt some plan or other so that the kitchen garden was utilised in the most profitable manner, and I adopted the following plan.

Having purchased a good-sized book I commenced on the 1st of January to note down every day's consumption, taking particular notice when anything ran short, and the time when this shortcoming took place, and how long any particular vegetable ought to have lasted according to the season. By keeping a full record of everything that is consumed in the kitchen—salading, fruits, &c., for one year you have nothing to do but refer to your book, and by missing every other line in the book there is plenty of room left for remarks, so that any alterations that you may wish to make in your plans for the coming year can easily be inserted.

I found this plan so useful that for years I recorded everything consumed, dating when it came into use and how long it lasted. I also found it an excellent plan to keep a record of everything when sown and when fit for use, and whether it came up to what was expected. If it did not come up to that mark or was better than was expected, then the vacant lines in the book came into use, when the cause or remedy was stated in the line below. A most excellent plan for assistance is mentioned by the Editors—namely, that where you find a man who has been some time on the place, and taken notice of the cropping of the kitchen garden, he is invaluable to anyone who will allow him a little liberty. I will give an instance of an old man that I had when gardener at Nuneham Park near Oxford, where the consumption was very large all the year round; and although this old man could neither read nor write he would very seldom deviate more than a few days in the sowing of the different crops, as has been proved by referring to the book.

Another thing of great assistance to the young gardener, where there is a large demand for vegetables, and his room is

limited, is to note down the quantity of each variety required, so as to be careful that space is not wasted by having three times the quantity required of one sort and far too little of another. At present I have the management of more than fifty acres of fruit plantations containing about 287 varieties of different fruits; but by having them thoroughly numbered and the names entered with the numbers, I can find any sort I want by referring to the book.—J. STEWART.

I HAVE read some very interesting articles in the *Journal of Horticulture* on young gardeners being in difficulties, and perhaps a few remarks will not be out of place from one who has secured confidence as regards kitchen-garden operations. The way I overcame my early difficulties was by being advised by my superior to write down everything that was sown and planted. If I were absent when some of the operations were done I afterwards examined the labels, and so gathered the information I required. Every fresh situation I went to I always wrote the garden operations down. But I found another plan very valuable; that was to write down when Peas, &c., were ready to gather, and Cauliflowers, &c., were ready to cut; that practice I found great gain. When I took my first head gardener's place my books were very useful, and when I made my seed list out I ordered varieties of proved excellence; and at the end of my first year my employers told me they never had been as well served with vegetables before. I hope this experience will be of some use to those who expect to be head gardeners at some future time. Dr. Hogg's "Gardener's Year-Book" is a very useful publication, as it has pages for garden memoranda in it for every week of the year.—T. J. BROWN.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE second annual business meeting of this Association was held on the 4th inst. at 5, St. Andrew Square—Mr. Dunn, President of the Association, in the chair. Over a hundred members were present. The Assistant Secretary (Mr. Alex. Milne) read the annual report, in which the Council congratulated the members on the very large measure of success which had attended it during the past year. The membership had increased steadily, 111 new members having been added to the roll, making a total membership of 352. Council meetings had been held from time to time, and there had also been seven meetings of the adjudicating Committees on new productions. A competition for kitchen garden plans brought out five competitors. The report referred in terms of regret to the loss to the Association by the death of Sir William Gibson-Craig, Bart., of Riccarton, Hon. President; Messrs. Thomas Methven, a member of the Council; John Beveridge and George Galloway, members; and Thomas Lees and James M'Nab, members of the adjudicating Committees. During the year twenty-four papers on various horticultural subjects had been read, which were followed by interesting and instructive discussions, and notes on the weather and other subjects had also been given on several occasions. At the monthly meetings thirty-one members and others had exhibited flowers, fruits, and vegetables of excellent culture. On the recommendation of the adjudicating Committees twelve certificates had been granted by the Royal Caledonian Horticultural Society for plants, flowers, and vegetables. The Treasurer's statement showed that the income, including £10 6*s.* 1*d.* of a balance from last year, amounted to £48 2*s.*; expenditure, £27 1*s.*; balance carried to next year, £21 7*s.* 1*d.* The meeting then proceeded to the election of office-bearers. Mr. W. H. Maxwell of Munches was elected Hon. President in room of the late Sir William Gibson-Craig; Mr. Dunn, Mr. Fraser, and Mr. Laird were unanimously re-elected President, Vice-President and Treasurer respectively; and Mr. Alex. Milne was appointed Secretary in room of Mr. John Methven, resigned. Fourteen gentlemen were nominated for the vacancies on the Council caused by five retiring in rotation and the death of Mr. Methven, and after a division the following were elected:—Messrs. A. D. Mackenzie, Alexander Mackenzie, Lawrence Dow, Robert Lindsay, Robert Morrison, and George Simpson. The following were sent in for exhibition:—Apple Beauty of Moray, from Mr. John Webster, Gordon Castle; Apple Lady Charlotte, a hybrid between Ribston and King of Pippins from Mr. George Barry, Saltoun Hall, which he raised several years ago and was referred to the new Fruits Committee for their opinion; Leucojum vernum from Mr. L. Dow, Saughton Hall, and five hardy spring flowers—Leucojum vernum, Iris reticulata, Primula Kashmeriana, Bulbocodium vernum, and Saxifraga Burseriana, all of great beauty, from Messrs. Dickson & Co.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE principal work in this department will consist in preparing the ground for seed-sowing, for owing to the late inclement weather and the wet state of the ground the work of sowing seeds recommended in former calendars has not yet been carried out. Let all arrears be brought up forthwith by sowing such crops that are required, and which have been referred to, when the state of the soil permits, and until such work is done it is not necessary to repeat former instructions. When the requisite quantity of Asparagus roots are taken up for forcing a corresponding number of roots should be planted to maintain the supply. The ground for the reception of the plants should be trenched as deeply as there is good soil, working in decayed manure and vegetable refuse very liberally. The soil if heavy should have sand, preferably sea sand, mixed with it, indeed sand should form one-sixth of the soil; and though Asparagus delights in moisture thorough drainage is necessary, as during growth liquid manure can hardly be applied to the beds too liberally. In soils that have a few inches of loam over a clayey bottom it is not desirable to bring up the stubborn material to the surface, but loosen it and enrich with manure and vegetable refuse, taking care to have rich light soil at the surface. The same remarks apply to light soils having a substratum of gravel. A deep rich sandy alluvial soil is the best for Asparagus. Where the soil is little better than clay it may be desirable to take it out to a depth of 2 to 3 feet and form artificial beds. The parings of the sides of roads, and ditch scourings, with the cleanings of ponds laid up for a few months, are admirable, adding an equal quantity of good loam, a sixth of sand, and a similar quantity of manure, the whole being thoroughly incorporated, having some rich fine soil for the surface, which should be 1 foot higher than the intended ground level. Ground for Seakale may be prepared in a similar manner. Both may be grown from seeds, or plants may be obtained and planted, one or at most two years old for Asparagus, which, however, should not be planted until growth has taken place to the extent of an inch or two, planting three rows in a 4 to 5-feet bed, the plants being 12 to 15 inches apart, but finer heads are had with the plants in rows 3 feet apart, and 18 inches asunder in the rows. Seed may be sown in rows at the distances named, the plants being duly thinned. Next month is early enough to sow or plant where the soil is not heavy and works freely. Aparagus beds should be lightly forked over, and when dry raked fine, the alleys being prepared for Cauliflower plants.

HARDY FRUIT GARDEN.

One of the most important points in the culture of wall fruits is the efficient protection of the blossom. The protective material should be in readiness, so that it can be applied without loss of time when the blossom commences expanding. Of all the materials employed for the purpose glass is no doubt the best, particularly for Peach and Nectarine trees, as not only the blossom and young fruit are liable to injury from frost, but the foliage is even more tender, having its tissues ruptured by cold, resulting in blistered leaves and distorted shoots. Glass copings are the next best protection, but it is necessary that screens of some kind be fixed to them and suspended in front of the trees, having poles or some other contrivance to keep the material from brushing the blossom. Screens of canvas, frigi domo, mats, netting of various descriptions of an opaque character, should always be so adjusted as to be readily removed or drawn off the trees, so as to admit of full exposure when danger from frost is not apprehended, or when it is not required to shade the trees from bright sun, which it is sometimes desirable to do when very frosty nights are succeeded by very bright days. A double fold of herring nets is mostly a sufficient protection for Apricots, Plums, and Pears; and rough straw or hay bands secured to upright poles slightly inserted in the ground 2 feet from the wall, the tops being fixed to the under side of the coping, the bands being 9 inches or 1 foot from each other, keep the blossom dry and are generally effective. Dry fern interwoven with the branches affords considerable protection, and sprays of Spruce or other evergreens are useful.

Guard as much as possible against the depredations of birds upon such trees as Plums, Damsons, &c., in orchards. Scarecrows are of no use in deterring the bullfinch from its work of destruction, the gun being the only effectual deterrent. Owing to the protracted cold trees are little more forward than they were before the frost, excepting trees against walls, which, especially Apricots, are swelling their buds fast. Young trees that are still dormant may still be planted, care being taken not to expose the roots to the air longer than can be helped. Mulch over the surface after planting with short littery manure, and make the trees secure against winds. Any healthy but unproductive or undesirable kinds of Apple or Pear trees should be headed down and grafted with kinds that afford profitable crops. Scions of the kinds intended to be employed should be secured at once, choosing well-ripened shoots of last year's growth and inserting their lower ends in moist soil in a shady situation, it being desirable that growth be retarded in the scions until the sap is rising freely in the stocks.

Vines upon walls out of doors, if not already pruned and nailed, should be attended to at once. Vines both against walls and under glass often suffer from overcrowding of the shoots, and consequently of the foliage, which results in imperfectly ripened wood and its concomitant mildew. To obviate this, thin out the

growths freely, shortening the shoots well back to firm wood. As a preventive of mildew remove the loose bark, but that only, and dress the rods with equal proportions of sulphur and quicklime brought to the consistency of cream with tobacco juice, applying the mixture with a brush. The surface soil should be removed for some distance from the stems outwards, adding fresh loam and a sprinkling of half-inch bones, which will materially assist enfeebled Vines by encouraging fresh roots from the base of the stems.

FRUIT HOUSES.

Vines.—We again urge the importance of starting late kinds of Grapes without delay, as a longer period of growth is mostly all that is needed to produce good-sized and highly finished fruit, and such as possess good keeping qualities. Syringe the rods several times a day, maintaining a moist atmosphere by damping the borders, &c., every evening. It is decidedly advantageous to cover the inside borders with fresh rather short stable litter, the ammonia given off having an invigorating tendency. Night temperature 50°, and 65° by day with sun. Disbud, and secure the growths in succession houses, stopping the laterals at two joints beyond the bunches. Remove all surperfluous and ill-formed bunches of the free-setting kinds as soon as those that are most promising for the crop can be determined upon. Vines started early in the year will be in flower; a rather dry atmosphere with a free circulation of air and a temperature of 65° to 70° at night and 70° to 75° by day, are conducive to a good set, moderate moisture being maintained by damping the house two or three times a day in bright weather; any shy-setting varieties, such as Muscats, should be kept 5° higher, the flowers being carefully fertilised. Early Vines in many places have not made satisfactory progress this year, especially those with the roots in cold borders which have not been covered with fermenting materials. The Vines have started very tardily, and the bunches show a tendency to blindness, some of them running off to tendrils and others not advancing freely. Under such circumstances a slight increase of temperature and a reduced supply of moisture for a short time may be beneficial. Thinning should be kept well in hand, commencing so soon as the berries likely to swell freely can be detected; and as a rule thin out well in the interior of the bunches, leaving the berries with room to attain their full size without wedging, and yet the bunches so full as not to fall out of shape when dished. Liquid manure applied to inside borders will materially assist the swelling of the Grapes after having been thinned, applying it at a temperature of 80° to 85°; and a liberal supply of moisture charged with ammonia, whether it be had by occasionally sprinkling with guano water or mulching the border with fresh stable litter with the straw shaken out will be beneficial. Bright sunny days with sharp winds may now be expected. Avoid sudden changes of temperature, and admit air in small quantities at a time, closing early in the afternoon at 85°, allowing the house to fall to 65° at night. Grapes that have passed the stoning process should have copious supplies of warm liquid manure. Avoid the close-stopping system until every part of the trellis is well covered with foliage, as every leaf promotes root-action, which it is necessary to maintain as active as possible, so as to secure well-swelled berries.

Fruiting Vines in pots must sustain no check through dryness at the roots or want of food, affording liquid manure liberally, surfacing the pots with rich material, and if the roots extend beyond the pots feed them there as well as in the pots. Vine eyes inserted as before advised will now be rooted, and should as soon as the roots reach the sides of the pots be shifted into 6-inch pots, placing them on shelves over the hot-water pipes in preference to plunging them in bottom heat. Ply the syringe well amongst them, and pinch the laterals at the first leaf unless they are intended to be planted out this season, when the laterals should be left intact. Vines cut-back for fruiting in pots next season will now be fit for reducing or shifting into 12-inch pots. If these, or the eyes previously referred to, have been plunged in bottom heat, they should be returned to it for a time, 75° to 80°; but otherwise bottom heat is not necessary. Keep them close and moderately moist until they are established. Train the canes near the glass, as they cannot have too much light, it being important that the growth be solidified as it is made. Turfy loam rather rough with a fifteenth part of half-inch bones form a suitable compost for Vines in pots. Clean pots and efficient drainage of clean crocks should always be employed in Vine culture.

Peaches and Nectarines.—Trees in pots have set better and are swelling the fruit more kindly, owing solely to the roots being in the same favourable temperature as the growths, than trees with the roots partly in outside borders. The leading shoot from the point of last year's laterals should be stopped if it be disposed to grow beyond six leaves or as many inches, and another shoot should be encouraged from the base of the shoots, which should be stopped at the fourth or fifth leaf. This applies to the strong growths, but the weak growths only a few inches in length must not be stopped at all. The stopping of the strong growths is certain to result in weaker and more fruitful wood, provided—and this is important—that the growths are thinly trained. Afford top dressings of partially decayed manure, and feed the trees liberally with liquid manure. In other respects the treatment of trees in pots does not differ from trees planted out.

In the earliest house the fruit will soon be stoning, during which process the temperature must be kept as equable as possible. Too high a night temperature is not favourable to the fruit, and cold draughts in the daytime are even more pernicious. The temperature should be continued at 60° to 65° at night, and 70° to 75° during the day. Thinning the fruit must be seen to betimes, it not being advisable to leave during the stoning period more than twice the number of fruit that are to be left for a crop. One fruit to a square foot of trellis covered with foliage is ample. Nectarines are often left much closer, which proportionally lessens their size, whereas to secure fine fruit they require to have the same space as Peaches. See that all the shoots are tied to the wires as they progress, stopping any shoots except extensions when they have made 12 inches of growth; if the pinching results in laterals stop them at the first leaf. Shoots retained to attract the sap to the fruit should be stopped to one leaf, they having previously had the first growth stopped at the second or third leaf.

Strawberries in Pots.—The earliest plants are just ripening their fruit, and though the Strawberry swells freely in a high moist atmosphere, yet when the fruit changes colour a drier and more freely ventilated house is desirable; but there must not be a sudden change, or the fruit will not finish off satisfactorily. The temperature for swelling off should be 65° at night, and 70° to 75° by day, advancing to 80° or 85° with sun. The second batch has set very well, but thinning is often thought a needless operation; yet to produce fine fruit not more than half a dozen should be left on each plant. When the fruit is fairly swelling and it is wished to forward the crop the plants may be moved to a house with a temperature of 60° to 65° at night, 70° to 75° by day, with an advance to 85°, affording the plants liquid manure copiously, the plants being looked over twice, and in very bright weather three times a day, watering such as need it. Plants in vineries and Peach houses which are started periodically will afford successional supplies of fruit, there being no need in such cases to remove the plants, except to meet special requirements. If plants be placed in ground vineries or plant protectors, fruit very much finer and about three weeks earlier than that in the open ground will be secured.

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

NOTICE TO LEAVE (*Elham*).—When the wages are paid weekly you ought to give a week's notice or pay a week's wages if your man lives off the premises: if he resides on the premises a month's notice is necessary.

STRIKING ROSE CUTTINGS (*A New Subscriber*).—There is little chance of your succeeding in striking Rose cuttings inserted now. If you try a few they should be made 6 or more inches in length, and inserted so that only the two top buds are above the surface of the soil. Cuttings of firm wood strike readily when inserted in a shady border in August, and in an open position in October.

PEACH TREE SHOOTS INJURED (*South Wales*).—The fact that the shoots are so greatly injured (those that you have sent are killed) on trees on the wall having an east aspect, while those on the south wall are safe, is evidence that the late excessively cutting easterly winds were the chief cause of the injury. Those winds were much more fatal to trees and shrubs generally than was the severe frost of December and January. Peach trees have sustained injury in many places, the full extent of which will not be perceptible until early summer.

PRUNING MAGNOLIA (*Idem*).—Your tree will not sustain injury by the growths that have overtopped the wall being shortened. We should give what pruning is required about the time the tree commences making fresh growth, or towards the middle of April.

CARPET BEDDING (*J. Barnes*).—You cannot find better information than from the pages of this Journal. There is no book published on carpet bedding, but the subject is included in the "Parks and Gardens of London," where designs and modes of planting them effectively are given.

PORTABLE PRESS FOR DRYING PLANTS (*R. L.*).—You require a portable press to accompany you in the Tropics for drying plants. There is nothing so simple and so portable as two boards of equal size, each with four slots in it through which to pass two leathern straps, such as schoolboys carry their books to school in. Place the plants between sheets of paper—old newspapers, if you can meet with nothing better—and strap them as tightly as possible between the two boards. When you rest for the night you can increase the pressure by placing stones or any other heavy articles upon them, regulating the weight according to what is required.

PROPAGATING FUNKIAS (*R. Franklin*).—They are readily increased by dividing the crown just as the plants are commencing growth in the spring. The present is a good time for increasing them, securing roots to each crown, and planting in rich soil, or potting and placing the plants in a cool frame. The Fern you have sent is Adiantum pubescens. Send the climbing plant when in flower.

HEATING A GREENHOUSE (*Irish Subscriber*).—A greenhouse 50 by 17 feet, especially if it is a span-roofed structure, is highly worthy of being heated by hot water. The heat from pipes is more regular and more healthy for plants than heat from a flue; and the whole process of heating by hot water is more cleanly and convenient than heating by flues. If your house is a lean-to a flue would exclude frost, but even then we should prefer a hot-water apparatus.

CREOSOTE FOR PAINTING (*O. G. R.*).—Our correspondent "OBSERVER" obtains the creosote he uses from Messrs. Churchill & Williams, Tunbridge Wells. If you ask a drysalter at Belfast to supply you with the ordinary commercial creosote for preserving wood, we think he will obtain what you require. It is also possibly known to some of the timber merchants there, who are more likely to be acquainted with it than are the apothecaries.

TURF (*Francis House*).—It seems to be either Agrostis canina or stolonifera.

PROLIFEROUS CAMELLIA (*J. B.*).—You do not state whether all the flowers produced by the plant are the same as the specimen sent. Many varieties produce an occasional abnormal flower. We are unable to recognise the variety from the specimen sent.

RAISING APPLE AND QUINCE STOCKS (*E. F. C., Maldon*).—Matured young shoots are selected in the autumn immediately the leaves fall, and made into cuttings of about a foot in length: these are inserted firmly in sandy soil, only a few inches of the cuttings being above the surface. They will not strike if inserted now. We are glad to hear of your success in grafting.

MOUSETAIL TURNIP (*J. Davis*).—A variety was some years ago cultivated under the above name. It was, we believe, selected from the Early Stone Turnip, and the name was suggested by its long small tap root. In 1877 a great number of Turnips were grown in the trial ground at Chiswick, but not one under the name of Mousetail. It is probably a variety of what is now known in commerce as the Snowball Turnip.

NEW CABBAGEWORTS (*Anthony*).—We consider it not only possible but probable that very distinct forms of the useful species of Brassica may be discovered. The President of the Royal Society when travelling recently in Morocco found one species having a stem 5 or 6 feet high, and having branches arranged like a candelabrum.

ADIANTUM FARLEYENSE UNHEALTHY (*E. H.*).—Your plant will probably improve as the season advances. We find no difficulty in growing it in the stove in a compost of turfy peat, sandy loam, and a free admixture of charcoal. We keep it in a shady position when producing its fronds, and afterwards remove it where it receives more light and some sun. The young fronds will shrivel on the one hand if they are exposed to the sun, the roots of the plant being at the same time dry, and they will decay on the other in a very moist atmosphere combined with a rather low temperature. It requires more heat than the majority of the Adiantums, and should seldom be syringed.

CYCAS REVOLUTA (*J. E.*).—This distinct plant, popularly but erroneously termed the Sago Palm, succeeds admirably in a warm greenhouse, but it will thrive equally well under stove treatment. If your plant is small and you desire to grow it on as quickly as possible, place it in the stove. Good turfy loam torn up roughly, with a liberal admixture of broken charcoal and sand if the loam is heavy, will form a suitable compost. Add drainage plentifully so that water passes off with freedom, for although the plant requires copious supplies of water it cannot endure any approach to stagnant soil. It is highly ornamental when well grown, and few plants of its kind are of more easy culture. Water carefully until the pot is filled with roots, and then copiously during the season of growth. Whenever water is applied take care that sufficient is given to thoroughly moisten every particle of oil. Driblets on the surface are dangerous.

HOPS EMPLOYED IN HOTBEDS (*Subscriber*).—If due care is exercised we think you will succeed in growing Melons with the aid of a mixture of stable manure and spent hops: if, however, the stable manure is short, and likely of itself to heat violently the quantity of hops you propose (half), would probably be excessive. Prepare the material by mixing and turning it previously, making up the bed, and reserve sufficient stable manure for applying as linings to the bed and frame as required. We have grown both Melons and Cucumbers with the aid of such fermenting material as you have at your command. If too many hops are employed the heat is likely to be violent for a time and of short continuance.

PRUNING PEACH TREE (*Coventry*).—Thin out the shoots at once, leaving as much of last year's young wood as can be secured to the wall without the shoots being much nearer to each other than a foot apart. In shortening the shoots do so at a triple bud. You will find full information on this and the other subjects named in your letter, in the "Garden Manual," which can be obtained at this office. Its price is 1s. 9d. post free.

PEACHES DROPPING (*A. B. C.*).—The dropping of the fruit when nearly full growm was probably caused by a deficiency of moisture at the roots. Very copious supplies of water are requisite when the trees are in full growth, indeed you can scarcely give the borders too much water if the soil is at all light and the water passes away freely. The canker of Cucumbers is shown by the swelling and rupturing of the stems just above the surface of the soil. The remedy, as you have read in "Work for the Week," is lime and soot.

GUANO FOR STRAWBERRY BED (*A Young Gardener*).—Guano sprinkled at the rate of two ounces per square yard will be a sufficient application. The same quantity applied to other garden crops where the soil is not fertile will be beneficial to them. If used as a surface dressing it should be sprinkled between the rows, not on the foliage, immediately before rain, or should be watered-in, afterwards running the hoe lightly through the ground when it is dry enough to be worked cleanly.

KITCHEN GARDEN WORK (*J. J. B., Leeds*).—Seed-sowing and similar work recommended a fortnight ago or even more, may still be done. Work has been greatly delayed this year in consequence of the extraordinary inclemency of the season. The condition of the soil is of primary importance in digging, sowing, and planting, and instructions cannot be profitably carried out except subject to weather and its influence on the soil. For instance, a crop of Onions will be better when the seed is sown during the last week of March under favourable conditions than if sown a month earlier and with the soil in a wet unfavourable state. If you require information on any particular crop or subject we shall be glad to give it on receipt of a letter from you.

HOT-WATER TANK UNDER HOTBED (*A Constant Reader*).—Instead of being objectionable the tank will be useful by rendering less fermenting material necessary. The tank should be covered with slates, having 2 or 3 inches of rubble placed over them for drainage, and then a layer of sods grass side downwards. The joints of the slates should be left open.

BEURRÉ DIEL PEARS NOT RIPENING (*R. K. P.*).—It is due in a great measure to the fruit having become gritty from an insufficiency of moisture during a period of hot weather when the crop was approaching maturity. We have had fruit of over 1 lb. weight quite gritty when grown against a wall, whilst fruit grown in the open were melting and in other respects excellent, though very much less in size, and not nearly so good in appearance as the wall fruit. Beurré Diel is less gritty on the Pear than Quince stock. The only means of ripening the fruit now is to place them in heat, but such fruit are only fit for stewing.

TRANSPLANTING CARNATIONS AND PICOTEES (*C. P.*).—If the plants are more than layers of last year it will seriously affect their flowering to take them up, manure the ground, and replant; but if they are young plants no harm will follow their being lifted with good roots. If they are two years old or more leave them where they are, and point-in some fresh loam and well-decayed manure around the plants.

UNPRODUCTIVE ASPARAGUS BEDS (*J. C.*).—The planting of fresh plants in a thin bed would not improve matters, as the failure probably arises from the soil being unsuitable. We should make fresh beds, and when the plants are in bearing destroy the old beds.

CUTTING SEED POTATOES (*Idem*).—We advise the cutting of seed Potatoes when they are large, otherwise we prefer a whole set of about 2 ozs. weight. If you cut them good eyes should be retained to each division of the tubers.

INARCHING VINES (*A Young Gardener*).—We are unable to account for the Vines not fruiting, as they—Black Prince and Buckland Sweetwater—are very free. Your Vines are perhaps wrongly named, for we do not think it possible to grow such varieties in a house along with Alicante, Foster's Seedling, and Lady Downe's for eleven years without fruiting, while the last three have afforded "some very good fruit." Keep the Vines in the pots, and inarch them so soon as the stocks are in growth, and if the scion be in growth all the better, as there is then less danger of bleeding. Inarching is the fac-simile of whip grafting, except that the scion is not severed until the union is complete. Select for the junction a smooth part of the stock, and preferably wood of last year, from which take a good slice with a sharp knife, a corresponding slice being taken from the scion. After making sure that the barks of stock and scion correspond—at least one side of them—bind the two Vines securely, and cover with grafting wax to exclude the air, or clay will do. In about six weeks the union will be complete, when the ligature should be loosened and the foliage on the stock reduced so as to throw the sap into the scion. When that is growing apace, the union being complete, it may be severed; but it is as well to do so partially in the first instance, and if that have no effect on the growth cut away altogether the connection below the scion.

MUSHROOMS FAILING (*A Constant Reader*).—So far as your statement o the preparation of the material, making and spawning of the bed, enables us to form an opinion, there seems nothing to account for the failure except that the spawn is at fault or has been destroyed by overheating. Our beds made like yours have produced abundantly since November and are not yet exhausted. The house, we presume, has been kept at a temperature of 55° to 60°, and the bed kept moist. Has there not been any show of Mushrooms?

HARROTHAMNUS ELEGANS (*J. D.*).—It succeeds well in a greenhouse temperature planted out in a border of turfy loam with a fourth of leaf soil and well-decayed manure, good drainage being provided; or will succeed in a large pot or tub. A light airy situation should be afforded; it is well suited for clothing a pillar, but ours is trained to the rafters and is now a mass of flowers. Free watering is required during growth, but the plant should be kept rather dry in winter. Plants may be procured of any of the principal nurserymen.

HOT WATER CIRCULATING IN RETURN PIPES (*A Constant Reader*).—The pipes in the Fern house being on a higher level than those in the Cucumber and Melon house will not cause the water in the return pipes of the latter to be heated by the pressure of the water in the Fern house pipes, but will lessen their liability to be heated, as the heated water invariably takes the highest level. You have simply committed one of the greatest errors that is made in heating by hot water, and one that makes some condemn the heating of several structures from one boiler, alleging that valves are of no use. We have a boiler heating seven structures upon different levels, and it is done very satisfactorily and simply by having valves upon both the flow and return pipes, whereby the heat can be regulated to a nicety. Place a valve in the return pipe as well as the flow, and you will find the hot water will come no further if as far as the valve.

SHADING GREENHOUSE (*H. S.*).—We know nothing cheaper than a light application of whitewash to the glass. See "Notes on Current Topics" by Mr. Peach in another column.

RIPPINGILLE'S PROPAGATING PLANT FRAME (*E. F.*).—We have not had experience with this frame, and shall be glad to hear from anyone who has employed it for raising seeds and striking cuttings.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

CULTIVATION OF BEANS—(*Continued*).

THE course of cropping on heavy land is so far important that beans may well be substituted for root crops, such as turnips, &c. In that case the rotation would be first an autumn fallow for beans thoroughly horse-hoed and hand-hoed, with as much tillage after the beans as can be effected, and the land laid up, ploughed during the winter to be followed by Lent corn, either barley, oats, or drege, for whichever the season may promise a favourable seed time, half the Lent corn lain to be seeded to clover, the other half to be seeded with mangolds or planted with cabbage; otherwise green crops, such as trifolium, followed by vetches, may be taken in accordance with the requirements

of the live stock which may be kept, the clover and root crops to be alternated every four years. After the clover the land should be manured upon the lea and ploughed early, say about the first week in September, or earlier if convenient, so that strong land such as we are referring to may become stale and mellow at seed time for wheat, which will follow as the last lain in the rotation; thus wheat after clover, mangold, cabbage, and other green fodder crops. As the crops are cleared lumps of couch, grass, docks, and other strong weeds should be forked. After the dung is laid out the land should be ploughed early and left till seed time in order to obtain the same advantages as early ploughing of the clover lea. We have then a four-course rotation—first, beans; second, Lent corn; third, half clover seeds and half roots, &c.; fourth, wheat.

We now take up the second part of the subject, the growth of spring beans on dry loamy land, and as this is attended with more risk than their cultivation on heavy clay land it is more necessary not to trust to the bean crop only. Careful cultivation is highly requisite, because dry soils are more subjected to the white-rooted couch grass than heavy land, hence the advantages of double culture, whereby the object of cleaning the land may be fully carried out. This is, in fact, the leading point connected with spring bean culture. There is, however, upon dry soils yet another and most important point to be considered—that is, to keep a certain amount of sheep and cattle; therefore, the object of growing a double crop has many collateral advantages. The old system of double culture used to consist chiefly of throwing-in a half pound of turnip or rape seed between the rows of beans just before the last hoeing; but this is a slovenly and careless plan, because it does not insure clean cultivation, as no hoeing can take place after the beans are harvested with any prospect of killing grass or weeds. It is true that in some seasons a fair amount of food for sheep may be obtained in this way, but rape, particularly the dwarf variety, is a very short-lived plant as regards its feeding value, for the leaf very often drops before the beans are cut or very soon afterwards, and the turnips not being hand-hoed and being late in growth yield but small bulbs.

We consider that the best plan of interculture consists of two points, the first being to select an early variety of bean, such as the Mazagan, Early Tick, and sometimes we have grown with success the Early Garden Longpod. These early sorts are important in two ways—they are more likely to escape an attack of the black aphides, and ripen sooner so as to give life to the plants' interculture, and an earlier opportunity for horse-hoeing after the beans are removed, so essential towards cleaning the land and giving life and vigour to the plants of root crops intervening. The second point is to select the plant for root culture most required for the cattle, and best adapted to the soil. We have seen cultivated between the beans, cabbage, mangolds, carrots, Swedes, and common turnips. This is variety enough for the home farm for the manager to select from, but in our experience mangold ranks first as regards weight of produce, white Belgian carrots next, because they require but little space for their foliage. Cabbage answers well; Swedes or turnips are not so good either in their produce or feeding value under this system.

The first thing to be done in preparing the land for these double crops is to give it thorough autumn tillage, and when clear let it be shallow ploughed and laid up for the winter. If dung can be spared at that time it may be laid out before the winter ploughing; if not, we do not advocate spring manuring, for two reasons—because the carting of dung not only delays the season, but makes the land too hollow and light for the beans; for these reasons we generally use guano, about 3 cwt. per acre to be mixed with damp ashes, and strewed into the furrows by hand exactly under the lines of beans, and the roots to be grown between them. For instance, if the beans are planted in the furrows either by hand or hand drill at 36 inches between the rows, there will be a line of beans or roots at every alternate furrow of 9 inches, in which the manure should be placed. If, however the beans are placed at 48 inches apart, which gives more room for horse and hand hoeing, the manure will be placed in the furrows at the respective distances. The wider distance is preferred by many, as the single-horse one-wheeled plough may be used between the lines instead of the horse hoe, and in some cases where the land is known to be in high condition previously, the beans may be drilled without any manure: but not so the root seeds, therefore the seeds for mangold and other roots may be hand-drilled between the beans, and the land prepared by ploughing a furrow up to the beans, leaving a furrow in which it is well to strew the artificial manure, and then plough it in with shallow furrows by turning the soil away from the beans, thus covering in the manure, upon which the seeds can be drilled by hand drill; or cabbage, Kohl Rabi, or Thousand-headed kale can be planted by hand or by spade. The latter is the best system of planting; it is a little more trouble but it never fails, for if the ground is hard, or in dry weather in spade planting the plants are put in deep into the moist ground without dry earth running in with the plants as when planted with setting sticks, besides which, much older and stronger plants can be buried properly in spade planting. If the weather should happen to be rather too wet at planting time, instead of having a mud wall kneaded round the plants with the setting stick, the plants lie with the earth light about them on the removal of the spade, in fact in our own experience we never could see any advantage in favour of planting by hand except the cost.

The general advantages of interculture are that with an ordinary dressing a crop of mangold equal to 25 tons per acre may be expected whether the beans succeeded or not, but to insure a full crop of roots at these wide distances they must be left thick in the lines, about 14 or 15 inches apart being the best distance. Cabbages should be planted about the same distance, except the Champion Drumhead variety; these may be set at 2 feet apart. Carrots succeed well, but should not be pulled or hoed out too early, as the grub is likely to destroy the plants. Under the plan that we have just detailed horse-hoeing will not be required after the seeding of the roots or plants, because of the late ploughing; but as soon as the beans are removed then let the land be horse-hoed—shallow the first time, and then deeply stirred. This will not only destroy any weeds which may have grown up with the beans, but it will enable the rootlets of the mangold, cabbage, &c., to seek their food throughout the whole cultivated space. Peas or vetches may be grown with the beans as recommended in the heavy land; but upon the dry loams, where stock can either be fed on the land or in house, the roots offer most advantage, because five or six sacks of beans are often grown in conjunction with 20 tons or upwards of roots per acre. This upon a fallow crop insures a full crop of corn afterwards, or gives the means of producing it. At the bean harvest they are cut and the sheaves set up between the rows of roots, being tied with yarn, and when carted the one-horse carts pass readily between the rows of the vegetable crops without injury. Under this system of double culture the beans may, in the event of being struck by the blight, be cut and used green. We had an instance last year just before harvest of the benefit of using them green, or some three weeks before they would be fit to cut and harvest in the usual manner. The plan is to pull or cut as many as may be required daily, and the pigs are found to do well upon them; but the most advantage is derived when they are passed through the chaff cutter and given to fatting cattle. We know from various experiments the feeding value of ordinary bean haulm, but when quite green the value is very much greater; therefore by removing the crop whilst green any vegetable crop will receive a great impulse in growth immediately the beans are removed, and there is no doubt that the total or full feeding value of the beans is obtained when cut and used green, at the same time it saves the expense and risk of harvest—stacking, threshing, &c. It is at all times a matter for consideration as to the best time for cutting and harvesting in the ordinary way, because when the beans are allowed to stand and get fully ripe they are often wasted by bretting in the field, and in the event of rainy weather when in shock the pods are sure to open and shed the corn more or less when carting and stacking.

WORK ON THE HOME FARM.

Horse Labour will be required to plough and prepare the land for beans, peas and vetches; the latter, however, should have some black Tartarian oats mixed with them. There is still some wheat to be sown, for those who had not sown all the wheat they intended when the hard weather and snow began in December have found but little opportunity of doing it since. The first open weather which occurs will be suitable for the completion of wheat-sowing, especially as the land is at present moist and heavy; and unless it is so the land had better be seeded to Lent corn. Land for barley, oats, and potatoes ought now to be prepared as soon as possible. When the land has lain fallow during winter the barley will probably go in well. The manure for it should be 1½ cwt. of nitrate of soda and 1½ cwt. of bone superphosphate sown behind the drill. Where the land has had roots fed off by sheep the treading of sheep makes it oftentimes very tough and unkind for barley. In such a case we prefer to sow the white Canadian oats which come off the land very early; and when seeded to clover it grows so fast after the oats are cut that it usually yields a good cutting of green fodder in autumn, which is very valuable, as it comes in for use after the old clovers are gone. We have had splendid crops in this way for soiling horses and cattle of all ages up to the time when the early frosts begin in October and November; and instead of injuring the growth of the following year as many suppose, we have found it just the reverse, and far better if not fed afterwards than when the clover seeds have been eaten off by sheep in the autumn. The harvesting of the early white oats is much safer than that of barley; the straw also is much better than barley straw, one reason being that this kind of oats must be cut early, otherwise they shed in the field, and when tied into sheaf the straw is well preserved against rain as well as the grain. Potatoes for seed should now be selected, the Early Rose for early digging; but as a farm crop, unless there are special facilities for the sale, we do not recommend all the early sorts, but would have a portion planted with the best varieties of second early or keeping sorts.

Hand Labour will be required in threshing and winnowing the clover seed, but it is found to yield badly although a large acreage

was seeded, in consequence of the abundant crop and low price of hay. Saintfoin seed should now be threshed, as the time for selling it has arrived, and a large area has been saved for seed from the same cause — heavy crops and low prices for hay. Hedge cutting and making will be still going on. We recommend that in those instances where hedges have been neglected or imperfectly trimmed, that they should be cut down to the height required for trimming, in order that the work may be done at small cost. In all those cases where hedges and banks are maintained between arable fields, and are to be trimmed (except whitethorn fences), they should be cut close to the bank, so that all the rough grasses, hogweed, &c., may be cut and made useful for feeding cattle, as they eat it remarkably well, even the brambles and young stems of maple, hazel wood, and such like when cut twice a year in May and in July, and any portion not eaten is trodden down and adds to the manure heap. It is also capital green food for pigs of all ages, but especially breeding sows, as they eat it with great avidity, and with a few peas in trough twice a day it will keep all kinds of store pigs in useful condition. The young cattle and dairy cows will up to the time of calving require liberal feeding. Straw cut into chaff and mixed with pulped or grated roots, and about 3 lbs. each of decorticated cotton cake, is good feeding without being costly; and upon the home farms which grow but little straw the cutting into chaff prevents waste, it being also more readily eaten by stock when mixed with roots, &c. It is well, however, a few days before the cows calve, to give them still better feeding by adding 2 lbs. of linseed cake meal, and the same quantity of bean meal. This will stimulate and excite the milk veins, and after calving a better flow of milk takes place, and will be longer continued than when the cows have been kept upon straw and roots only. The lambing time of the Down breeds of sheep is now far advanced. The Long-woolled ewes will soon drop their lambs, and it is well where a shepherd and an assistant are kept that they should be prepared for all emergencies or disasters in the lambing fold by having ready at hand such medicines, &c., as are likely to be required. For inflamed udders the sugar of lead ointment in the first stage of the disorder: if the case is serious, verdigris ointment will be required to prevent the fatal effect of mortification. When the ewes are weak after lambing and refuse their food, nourishing gruel made of linseed cake and oatmeal should be given; and instead of using a drench horn we use a strong wine or soda water bottle. Tincture of opium will also be required for young lambs attacked by white scour: a few—say ten, drops in a little milk for the youngest lambs, older ones will require a teaspoonful: foot rot paste should always be in store. Bleeding from the neck is, however, necessary in all cases of inflammation. The shepherd should therefore be provided with a small lance or fleam, and in order to enable them to bleed from the neck vein with success practice is required. We always taught our shepherds by making them occasionally bleed healthy sheep for experience.

RULES FOR SUCCESS IN POULTRY-KEEPING.

To insure success in poultry-breeding there are a few conditions that must be strictly observed, no matter what the weather or how valuable your time may be to you. The time has passed—if it ever existed—when you are to look for profit in raising fowls of any kind by giving them little or no attention. The conditions referred to are cleanliness, proper food, and plenty of room, both indoors and out. The first is easily attained by keeping the manure cleaned up as often as once a week (twice would be better) scraping the perches at the same time, and the free use of air-slaked lime all over the quarters inhabited by your fowls. Lime should be also sprinkled where they take their dust baths. Study the tastes of your fowls, and you will soon ascertain what is meant by proper food. Whatever they like is good for them in moderate allowances. Indian corn they must have in cold weather and when moulting, although oats are a better egg-producing grain and healthier; but a moderate quantity of corn seems to be a necessity. Chopped vegetables of any kind—raw and cooked—occasionally. Meat at least once a week, except in the season when insect life is at its height; then of course if your fowls have their liberty, as they should at that season particularly, they will provide for themselves.

Give as much space as you possibly can for the fowls to occupy in the poultry house, both for perches and exercise room, when the weather keeps them indoors. To promote digestion, which is a very important matter and must not be overlooked, see that they have easy access to plenty of fine gravel. You can obtain plenty of bones for a nominal price at any slaughter house. Burn them from time to time in your stove and throw them out with your ashes to the feathered fraternity, and see how greedily they will "go for" them. Clean drinking dishes and cool water at all hours of the day they must have. By following the above suggestions the writer has succeeded in having fresh-laid eggs every day this severe winter, in such quantities that enough have been sold to more than pay for the feed.

These notes are written not for the professional breeder of fancy fowls, but for that class of people who, while taking pleasure in having a healthy lot of poultry about them, would very naturally like to have them contribute something to the family exchequer.—J. W. H. (in *Prairie Farmer*).

REVIEW OF BOOK.

Moore's Columbarium, Reprinted Verbatim and Literatim from the Original Edition of 1735. With a Brief Notice of the Author by W. B. Tegetmeier. London: *The Field* Office, 346, Strand.

This is a very interesting reprint. The ornithologist will receive it with pleasure, but the Pigeon fancier with a much warmer feeling, for "old Moore" is the father of the fancy. Here we have the veritable "Columbarium" page for page, line for line, letter for letter, just as Moore sent out this his pamphlet only two years before his death. Perhaps he expected his worm powders—for he was a quack doctor and chemist—to last to the nineteenth century, little thinking that his little book on fancy Pigeons would be the thing to render his name immortal; but so it is. Fancy has beat doctoring. He and his worm powders might have died out of knowledge, except indeed that in the older editions of Pope's poems are ten somewhat grotesque stanzas addressed to him, but they are not to the taste of the present day, and are not always in modern editions; neither is the omission to be wondered at, as some of them are coarse as well as grotesque. These lines, by the way, I had the good fortune to discover in a very old copy of Pope in a clergyman's library in Wilts. I was able with some trouble to identify the Moore of Pope with the Moore of the "Columbarium," partly with the help of the late Mr. Hotten, author of the "History of Signboards," and published some of the lines with a special account of them in this Journal in the number for October 9th, 1866. Since then I have seen them quoted in other books. They are naturally enough included by Mr. Tegetmeier in his interesting introduction to his reprint of the "Columbarium." It is conjectured that Moore only issued a few copies of his pamphlet, for fanciers were few; and then he died so soon afterwards, and perhaps his heirs cared nothing for Pigeons. A pamphlet, too, is soon rubbed to pieces, and its leaves soon come to light fires. And just as a little book of Charles Lamb's poems faded from sight, so did the "Columbarium," only five copies being known to exist—four in the British Museum, two of which (mark it!) were owned once by Sir Joseph Banks and Sir Hans Sloane, both celebrated naturalists. So Moore "fit audience found though few," and these few valued his admirable work. Now happily, owing to Mr. Tegetmeier's care and pains, the actual "Columbarium" will be for ever in the hands of all fanciers. It is a wonderfully good and original work, and the little worm doctor set the model upon which all Pigeon books have been written, for all other writers have followed his arrangement. Even now it is as a guide wonderfully correct.

I am glad that type and paper have been selected to match the old copies. It is an early-eighteenth-century book all over, each page studded thickly with capital letters and many abbreviations. The members of the fancy have to thank Mr. Tegetmeier for this welcome reprint. It has made me once more read the "Columbarium" and note its great value, and has completed my list of the books on domestic Pigeons.—Wiltshire Rector.

CANARY TREATMENT.—No. 2.

Having in Chapter 1 briefly pointed out the most suitable material for Canaries to form their nests with, we shall, before continuing the promised extract, give one or two hints best adapted for supplying the birds with the necessary building materials. Many fanciers indiscriminately throw inside the cage an abundance of moss and hair, most of which become partly soiled by the birds before the hen is ready to construct her nest. The consequence is most of the moss and hair is often thrown away at the time the cage or partition is cleaned out, thus necessitating a further supply of material. Some would-be breeders without possessing a thorough knowledge that their birds will "go on" (to use a Canary breeder's parlance), give the birds moss and cow's hair in small thread nets suspended outside of the cages; but to this we take objection, for the reason that the contents are scattered about the cage floor, and after that the threadwork of the empty net is hauled inside the wires to the danger of the birds losing their lives by getting their claws entangled in the thread, and the birds being found suspended head downwards. We have not only heard of birds being lost in this way, but becoming crippled in their feet. The placing together moss and hair in such nets is unwise, for in most instances the birds are induced to pull out the hair first, whereas the hair should be supplied just at the period when it is required to line the nest with it. It is very essential that the cow hair should be well scalded and cleaned with soap before it is used, for it is often very greasy and scurfy when taken from the cow's hide, and if given to the Canaries unclean it will encourage the accumulation of red mites in the nests, and puzzle many a new beginner in the science and mystery of Canary breeding.

"There are three sorts of things given them to make their nests

in. First, little osier baskets; second, wooden cases or boxes; third, the like made of earthenware. Those who invented the earthenware pots say they did it because the hen Canary bird, who is at least twenty-four days without coming out of her nest, does not sweat in them as she often does in the baskets; but in my opinion they have not succeeded in that point, for it is certain that the earthen pot, being naturally damp, must have ill effects upon the sitting hen, and worse upon the little new-hatched birds. One important consideration is, that if the hut happens to be a little exposed to the sun, the earthen pot will grow so hot and retain the heat so long, even after the sun is gone off it, that it will certainly kill the hen and stifle the young ones. As for the wooden boxes or cases, they are convenient, because it is easy in them to take out the nests and put them in again now and then, to shake out the insects that lie at the bottom; for in that sort of box the nest is taken out altogether, and may be put in again exactly as it was before, without the birds perceiving that it has been touched; but there is no making use of those boxes that are bored through, because in taking out the elder stick that goes across them, the nests are all disordered, and the eggs often broken, which, the hens perceiving, they generally take pet and leave their nests. Two other inconveniences attend the wooden boxes. 1, The nest which is made in a wooden box having no passage for air, grows very hot, and often causes the hen to sweat. 2, The nest made in those boxes is so small and close, that when either the cock or hen gets into it they drag it with their claws and break the eggs, or overturn the little ones, if there are any in it. It is best, according to ancient custom, to make use of little wicker baskets in which the nest is not so much stived up and holds faster than in any other thing. Those who make the baskets bigger than was formerly used are in the wrong, for the birds spend more time in filling them to make their nests, and consequently toil themselves the more. Besides, in a great basket the eggs a hen sits on are apt to lie at a distance from one another, and it often happens that several of those eggs do not hatch, because they were not well covered."

The best way to find whether a hen is ready to commence her nest is to place betwixt the wires about as much moss as will fill an eggshell. When you perceive the hen has carried the moss into the nest basket, and after sundry hoppings out and in, accompanied with a certain amount of gyratory fuss, and leaving the moss inside, you may set it down as positive that she means business. About that time only treat her with a small feather betwixt the wires, and watch how quickly she fastens on to it regardless of your close observations of her. At this juncture supply her with more moss, and she will speedily let you see what use she will make of it. But the way we have adopted in giving the moss has been to place it in a skeleton framework receptacle constructed of sheet tin turned at each side wider at the top, say 1½ inch, graduating to about half an inch at the bottom, the frame having three wire bars in front (which faces the cage) through which the hen can pull the moss. The framework is about 4 inches in size, having a wire hook at each shoulder to hang on the cage. Perhaps it would be giving a better idea by stating that the side view of the frame resembles somewhat the capital letter V. Similar frames may likewise be constructed of wood and wire with a 3 or 4-inch square of glass slid in the front, so that it might be seen when the moss was used up.—GEO. J. BARNESBY.

VARIETIES.

SEVERAL letters have been addressed to us, the writers of which greatly regret the decision of the Royal Agricultural Society not to include poultry in their programme for the International Show next summer. It is suggested that the Poultry Club should manage to have a Show, if not in connection with the great Exhibition, at least at the same time, to give foreign visitors an opportunity of seeing English poultry. We believe a member of the Poultry Club Committee will bring forward the subject at a Committee meeting to be held next week.

—— LORD TURNOUR, well known to many of our readers as an enthusiastic poultry fancier, has succeeded to the House of Peers on the death of the Earl of Winterton.

—— WE alluded some weeks ago to a curious incident connected with a late Scotch poultry show. Some late entries were received by telegram, and the Secretary took upon himself to price the birds. We are glad to learn that the lady who lost a valuable bird through a mere selling-class price being put upon it, has after great trouble recovered it.

—— RELATIVE to the poisoning of animals by eating the growth of yew trees, an opinion prevails that the sprays are only poisonous when they are partially withered. An instance has just come under our notice of a horse having been poisoned by eating yew in a green state. The animal was left for a short time within reach of a yew hedge and was found eating it; the horse was then driven on a journey, but after having proceeded about two miles it commenced staggering, and almost immediately fell down and died. On being opened about a pint of masticated yew was found in its stomach, and this was pronounced the cause of death. Thus by the want of due caution a valuable animal was lost, and the loss is worthy of being recorded as a warning to owners of animals where yews abound.

—— WE have received the farm seed catalogues of Messrs. F. & A. Dickson & Sons, and James Dickson & Sons, Chester; and Messrs. Edward Webb & Sons, Wordsley, Stourbridge. The whole of them are illustrated, and contain descriptions of various popular grasses and roots. Messrs. Webbs' catalogue contains a view and description of their great seed farms at Kinver, 1200 acres in extent. Prominence is also given to various manures, quantities per acre being stated for the several crops.

—— MR. W. B. TEGETMEIER has published a reprint of Moore's "Columbarium," which is now before us. It is admirably executed, and its appearance will be hailed by those fanciers who have never had access to this rare work. The care which Mr. Tegetmeier has bestowed upon this reprint is most commendable. It is published at the *Field* office. A fuller notice of this work appears on page 204 from the pen of "WILTSHIRE RECTOR."

—— SIR C. W. STRICKLAND communicates to *Nature* the following instance of "instinct," which the author thinks shows that there is no difference whatever between the reason of animals and that of men. A mare here had her first foal when she was ten or twelve years old. She was blind of one eye. The result was that she frequently trod upon the foal, or knocked it over when it happened to be on the blind side of her, in consequence of which the foal died when it was three or four weeks old. The next year she had another foal; and we fully expected that the result would be the same. But no; from the day it was born she never moved in the stall without looking round to see where the foal was, and she never trod upon it or injured it in any way. You see that reason did not teach her that she was killing her first foal; her care for the second was the result of memory, imagination, and thought, after the foal was dead and before the next one was born. The only difference that I can see between the reasoning powers of men and of animals is, that the latter is applied only to the very limited sphere of providing for their bodily wants, whereas that of men embraces a vast amount of other objects besides this. The above limitation does not, however, apply strictly to domestic animals, dogs especially, which seem to acquire some perceptions beyond mere animal ones.

GOSSIP ABOUT BEES.

THE Stewarton hive and system of management have been very well represented and recommended, and the modern straw hive with its humane system of management has been held up to view. Fair and free advocacy has been given to all writers, and this very freedom granted to all has brought into view so many different opinions and practices that some beginners are puzzled and perplexed to know which one to follow. Freedom of choice —a glorious privilege—all bee-keepers possess.

Two very intelligent working men who have twenty stocks of bees (one twelve the other eight), recently applied for information. They had read that unless artificial comb foundations were used British bee-keepers would not be able to compete in the market with Americans. As they can get 1*s.* 4*d.* per lb. for strained or run honey, and as it is known that bees gain weight faster in houses without partition walls than they do in houses of two or more compartments each, they were encouraged to go on as they hitherto have done. Being told that I had ordered 10 lbs. of foundations for experiments of various kinds they wanted to know how the foundations could be conveniently used in straw hives. They were told that if the use of artificial foundations be proved to be a substantial advantage in apiculture hives of all kinds would be adapted for their introduction, and that even straw hives could be easily made to admit sheets of foundations; that our experiments this year with them would be in supering chiefly, for we are anxious to learn whether natural combs in supers cannot be as cheaply produced as artificial ones. The two gentlemen are well advanced in profitable bee-keeping, and know how to create stocks by syrup-feeding in autumn. "Well," I said to them, "if you want to get some supers full or half full of natural white empty comb, could you not put a swarm of bees in autumn into three supers connected and standing on each other, and then feed the bees? The top super would be first filled with combs and syrup, and the centre one would be partly filled. By lifting the top one off for a day or two and then placing it beneath the other two the bees would empty its combs, and build more combs in the top and middle ones. Thus the syrup would be used over and over again in filling supers with combs for use the year following."

A correspondent in the south of Ireland, who contemplates going into bee-keeping extensively by degrees and devoting much attention to them, asks if we think the work would pay, and how many stocks should he begin with. He lives on an estate of four hundred acres of land, mostly in pasture with good clover, with plenty of orchards and forests in the neighbourhood, and a hundred acres of heather about seven miles distant. "What," he says, "if ten acres of my land be sedulously cultivated for bees?"

From the description given of the neighbourhood we think it is a good one for bees; that if properly managed they would pay well; that ten acres of mignonette might be laid down with advantage, for probably the seed of the mignonette would realise a good return, and for three months every year the flowers of the mignonette would yield honey of the highest excellence in great abundance. We advise our correspondent to begin bee-keeping with twelve or twenty hives, and increase his stocks to forty next year, afterwards he will be guided by his ability and experience. In bee-keeping it is wise not to go too fast and too far. Some practical experience is necessary; markets for the produce have to be found, and the tricks of the weather have to be considered.

The arrival in Liverpool of 60 or 80 tons of honeycomb in one consignment from America, and the reports that it all came from one gentleman who owns 12,000 stocks of bees, have stimulated the attention of many people in this country. I was glad to learn that the attention of the Bee-keepers' Association had been called to the quality of American honey. Mr. Fletcher who had purchased some of it does "not fear its competition. Its flavour reminded him of peppermint drops mixed with tallow." And Professor Redwood who had examined and analysed a sample of it said, "The stuff was really not what we know as honey, being deficient in flavour and not naturally obtained from plants and flowers. Still he had not been able by the closest examination to get any chemical evidence that the sample submitted was not honey. The palate, however, could not be deceived as to the inferior quality of the American article."

This is keeping step with my own suspicions. Two years ago I saw one of the American boxes of honeycomb, and its contents had not the smack of genuine honey. Now genuine honey gathered in America should be as good as genuine English honey. Fruit trees, lime trees (or baswood in America), and white clover, are the principal honey plants across the Atlantic, and all these yield honey of the highest flavour and quality. My son three years ago (since deceased) was in America, and there saw and tasted honey of exquisite flavour. He had never seen or tasted better in England. I have no fear of honest competition, no fear of America sending a cheaper article to our markets, if it is genuine; but if the bee-keepers there tap the stems of their maple trees and thus get tons of syrup or molasses for the English markets and call it honey, the buyers in this country must be warned against the deception.—A. PETTIGREW.

OUR LETTER BOX.

LEGHORNS (*Forddlas*).—Mr. Lewis says in his "Practical Poultry Book:' 'They are bred of nearly all colours save black, the white, however, receiving the preference. The imported birds are not inferior to the American standard of excellence, the white variety being similar to the Spanish in size and appearance, except in the plumage, which is white, with hackle or neck and saddle feathers slightly tinged with gold. They have proved thus far very hardy birds, suffering from the sudden changes and severe weather of our northern and western climate much less than the Spanish, with which breed many deem them closely allied. They are extremely good layers, and seldom desire to sit. The young are easy to rear. They feather up soon, and at the age of six or eight weeks are miniature chickens—that is, perfectly feathered, and as sprightly as many chicks are at four months of age. The hens are considered excellent winter layers, and will lay as large a number of eggs in a year as any fowls known, not excepting the Polands or Hamburghs. They are hardy, medium-sized fowls, of a quiet and docile disposition; persistent layers of a rich meaty egg; pure white colour, though in some flocks occasional coloured feathers will appear; these should at once be discarded from the pen, if it is desirable to breed the pure white bird. Their legs and skin should be of a yellow colour."

DISEASED BRAHMA PULLET (———).—She is suffering from inflamed ovaries, probably. Let her food be moistened barleymeal, and keep her in a sheltered place. Warmth, not medicine, is required.

GUINEA FOWLS (*T. W.*).—The hen is the only one that utters the peculiar "Come back" cry.

BUDGERIGARS (*A. L.*).—A cage 24 inches long by 14 by 20 would be better adapted to keep a dozen of the above birds in than one of the dimensions you name; and even then you might experience a little occasional jarring or sparring with them. We prefer keeping our Budgerigars (cock and hen) in pairs in smaller cages. It is more healthy for the birds. A small aviary would be better adapted for twelve birds. Cock birds (Budgerigars) are distinguished by their general brighter plumage, although this rule does not follow in some other kinds of foreign birds. The cere or blue mark above the upper mandible of hens is paler in colour unless the birds have been tampered with. If the number of cocks predominated there would be more likelihood of unpleasantness in their household. At night time the birds should be allowed to retire to roost; and to facilitate which, when the lamp is lighted, shade the cage with a cloth. We never heard of them being pestered with the Canary parasites, but if the cage be infested with the torment you may rest assured that it would be "Hobson's choice" with the insects, and the birds would be disturbed in their rest. The cure would be, after removing the birds, to well cleanse the cage with the application of train oil and turpentine to the crevices, and afterwards well washing the cage with hot soap and soda suds. The authority of the gentleman you name is worth observing. He ought to know as to treatment, considering the number of such birds he has to deal with. We give for food white millet and canary seeds. All Parrots and Parakeets, according to Bechstein's work, require very little water indeed. To our own Budgerigars we never give a bath, but we keep a fountain of water outside the cage for the birds to drink from when occasion requires, and that apparently is rare. To us it appears somewhat remarkable that they require so little moisture. Gedney's "Foreign Cage Birds," vol. i., at 3*s.* 9*d.*, will afford you knowledge of treatment as to Budgerigars.

COLTSFOOT IN PASTURE (*A. B.*).—It is very difficult to eradicate without breaking up the turf; and even then, if a few small pieces of the root were left in the land, it would increase similarly to the growth of Horseradish in gardens. It is worth a trial regardless of cost to take off the turf and dig out the roots, and then relay the turf. Applications such as salt would kill the turf if enough was applied to kill the Coltsfoot. Gas lime the same, but these are the two likeliest applications to destroy the weed. Your land probably requires draining. Folding sheep on the ground in spring has sometimes a beneficial effect, as their continued trampling crushes the young growths and crowns of the plants, and so weakens them considerably.

TRANSFERRING COMBS (*A Lady*).—The work of taking combs from straw hives and fixing them in Stewarton hives is rather difficult. This work may be done now, as the combs are not yet filled with brood. Some wax for cementing the combs to the bars should be provided, and some fustian rags for fumigating the bees. Begin with one hive. Blow the smoke from the rags into the hive, turn it on its crown upside down, and cut its combs out one by one, beginning at the outside. With a handbrush sweep the bees from the combs into an empty hive or box as they are taken out, and set them on the stand. All this may be easily and speedily done, though to a beginner it appears a formidable task. The combs thus cut out and swept clean of bees should now be cut to fit the bars, and well cemented to them with melted wax. If any brood be found in the centre combs they should be fixed in the centre bars. As soon as all the bars are filled and fixed in the hive the bees may at once be cast into the hive to save the brood from being chilled. Combs are more easily fixed in frames that have bottoms to them, for in such frames the combs can be kept in their place by tape or string till the bees fasten them. If you have not courage enough to undertake the work of transferring the combs and bees from their present hives to Stewartons, you will be able at the swarming season to have all your Stewartons filled by the swarms from the straw hives. This will probably be the easier and better course for you to pursue.

CREAM CHEESE (*W. Haslam*).—A first-rate article may be made from a quart of cream, to which add a pint of new milk. Then warm it in hot water to about 90° Fahr., and add a tablespoonful of ordinary rennet. Let it stand till it thickens. It should then be broken slightly with a spoon and placed in a frame according to size required– about 8 inches square is usual, and 4 inches deep, in which a fine canvas cloth has been placed; and then it should be pressed slightly with a weight. Let it stand for twelve hours, after which it may be lifted out and replaced in a fine muslin cloth over which a little salt has been powdered. In a day or two it is fit for use. Or the cheese may be enveloped in small straw or rush mats after being powdered with salt.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. March.	9 A.M. Barometer at 32° and Sea Level	9 A.M. Hygrometer. Dry.	9 A.M. Hygrometer. Wet.	9 A.M. Direction of Wind.	9 A.M. Temp. of Soil at 1 foot.	IN THE DAY. Shade Temperature. Max.	IN THE DAY. Shade Temperature. Min.	IN THE DAY. Radiation Temperature. In sun.	IN THE DAY. Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 5	30.054	48.2	46.9	S.W.	38.8	54.3	38.6	80.4	34.2	0.040
Th. 6	30.191	41.9	39.0	W.N.W	40.3	53.6	35.4	98.8	29.6	—
Fri. 7	30.506	39.8	37.7	W.	39.9	55.2	33.1	93.5	29.3	—
Sat. 8	30.603	36.7	36.3	E.	39.4	55.4	30.3	92.3	27.6	—
Sun. 9	30.432	44.7	41.8	W.	39.0	60.2	30.9	99.2	27.6	—
Mo. 10	30.435	39.6	39.9	W.	39.8	54.7	34.4	97.0	31.2	0.110
Tu. 11	30.314	44.3	41.2	N.	41.1	50.4	39.2	99.6	38.7	—
Means	30.362	42.2	40.4		39.8	54.8	34.6	94.4	31.2	0.150

REMARKS.

5th.—Mild pleasant day, rather windy; moonlight evening.

6th.—High wind during the night, squall of rain at 1 A.M., very fine, bright, calm day; moonlight night.

7th.—White frost, foggy in early morning, bright and sunny here after 9 A.M., but thick fog in town, which slightly arrived here at 3 P.M.; very thick at 4.30 P.M., and foggy evening.

8th.—White frost in morning; calm sunny day; very bright moonlight night.

9th.—Very clear bright morning; fine spring-like day; bright sunshine at times; cloudless sky.

10th.—Foggy in morning; fine day, but cooler and more wind.

11th.—Rain during the night; fine day, cool wind; very calm evening.

Barometric average very high, and precisely the same as last week. Temperature rather above the average but with great daily ranges. On the 9th it varied from 30·9° to 60·2°, and there were grass frosts on five nights out of seven.—G. J. SYMONS.

COVENT GARDEN MARKET.—MARCH 12.

THERE has been little alteration to quote during the past week, prices generally being at a standstill and no improvement in the trade. A larger supply of Cucumbers has lowered rates considerably. Good samples of hothouse Grapes have been in better demand, but little improvement has been experienced in value.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples	½ sieve	2 0	to 5 0	Melons	each	0 0	to 0 0
Apricots	dozen	0 0	0 0	Nectarines	dozen	0 0	0 0
Cherries	℔ lb	0 0	0 0	Oranges	℔ 100	4 0	12 0
Chestnuts	bushel	2 0	6 0	Peaches	dozen	0 0	0 0
Currants	½ sieve	0 0	0 0	Pears, kitchen	dozen	0 0	8 0
Black	½ sieve	0 0	0 0	dessert	dozen	3 0	8 0
Figs	dozen	0 0	0 0	Pine Apples	℔ lb	2 0	4 0
Filberts	℔ lb.	0 9	0 0	Plums	½ sieve	0 0	0 0
Cobs	℔ lb	0 9	0 0	Raspberries	℔ lb.	0 0	0 0
Gooseberries	quart	0 0	0 0	Strawberries	℔ lb.	0 0	0 0
Grapes, hothouse	℔ lb	3 0	8 0	Walnuts	bushel	0 0	0 0
Lemons	℔ 100	4 0	8 0	ditto	℔ 100	0 0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 20—26, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age. Days.	Clock before Sun. m. s.	Day of Year.
20	TH	Royal Society at 8.30 P.M.	50.1	33.8	42.5	6 5	6 10	5 5	5 53	27	7 40	79
21	F	Royal Institution at 8 P.M.	50.7	32.5	41.6	6 3	6 12	5 18	5 4	28	7 22	80
22	S	Royal Botanic Society at 3.45 P.M.	50.4	34.3	42.3	6 1	6 13	5 31	6 14	●	7 4	81
23	SUN	4 SUNDAY IN LENT.	50.7	33.1	41.9	5 58	6 15	5 43	7 23	2	6 46	82
24	M	Royal Geographical Society at 8.30 P.M.	48.7	31.7	40.2	5 56	6 17	5 57	8 32	3	6 27	83
25	TU	Royal Horticultural Society—Fruit and Floral Com	50.9	32.8	41.9	5 54	6 19	6 13	9 43	4	6 9	84
26	W	Rl. Botanic Society's Spring Show. [mittees at 11 A.M.	51.8	32.6	42.2	5 51	6 20	6 32	10 52	5	5 51	85

From observations taken near London during forty-three years, the average day temperature of the week is 50.4°; and its night temperature 32.9°.

HARDY FRUITS—PEARS.

I AM very glad to find that an election of this valuable British fruit is about to be held, and as I have had some experience in the growth of Pears in the several counties of Lancashire, Westmoreland, Shropshire, Warwickshire, and last of all Worcestershire, I venture to think I know something of the relative values of some varieties. This of itself, however, would not justify me in rushing into print, but I have bought some experience rather dearly, and as I believe I represent a very large class amongst the readers of the *Journal of Horticulture* I trust that my remarks may save some young amateurs from disappointments and help some to success.

As this is my first venture in committing my ideas to the public through your columns I may say that I have loved a garden from my boyhood, and it is now nearer forty than thirty years since I first began to grow such plants as Fuchsias, Pelargoniums, and other popular flowers in competition with my father's gardener. It is therefore no wonder that I have been a constant reader of the Journal and many books on my favourite hobby, and as I have always been fortunate enough to have a garden I have practically tested many of the theories which I have read. The result has been to bring together a collection of plants which are very interesting to myself, and which I venture to think afford pleasure to many others also. This collection includes fruit trees, Rhododendrons, Roses, hardy Ferns, &c. But to-day I must treat only of Pears.

However the county of Lancashire may suit Apples, it is certainly not generally favourable to Pears. My attempts to grow them in Lancashire were not encouraging, and I must say the same of Westmoreland and Cheshire. Pyramids were a decided failure with me in all those counties. In Cheshire, where I lived for twelve years and had a good rectory garden, the pyramids bloomed but never gave me a crop. Trees on walls did succeed, so far as the following sorts were concerned: Marie Louise, Louise Bonne of Jersey, and of course the old Jargonelle. I had also a good crop on the Aston Town as a standard; but such Pears as Winter Nelis, Beurré Rance, Beurré Diel, Bergamotte Esperen, *cum multis aliis*, never ripened a crop; in fact the late frosts seemed to kill all the blossoms.

I remember one remarkable illustration of the difference of climate as affecting Pears. Some years ago when living in Cheshire I visited Malvern, and met with a very fine Pear which was ripe about the first week in November. It was new then, and not to be bought, but I succeeded in obtaining from the raiser two trees. The Pear is now known as the Pitmaston Duchess. I planted the trees in Cheshire, and was pleased to see them show bloom. Year after year the same thing happened, but I had no fruit. Circumstances led to my residing at Leamington, and I took the smaller of the two trees with me. Two years afterwards I was rewarded with such a crop of Pears as I had never grown before on a tree of that size. There were three dozen Pears weighing from 16 ozs., the heaviest, down to 12 ozs. This Pear deserves to be better known; it is in my opinion very superior to the Duchesse d'Angoulême, as the flesh is more melting and of finer quality, while the flavour is equally good. It is indeed, as I think it is described in the "Fruit Manual," the produce of a cross between the old Duchesse d'Angoulême and Marie Louise, and combines the good qualities of both. Having arranged with my landlord to remove any trees I planted that I wished to bring away, I brought this Pear to the eastern slope of the Malvern Hills, and here again I have not only blossom but abundant crops of fine fruit. While on the subject of locality I may state that although many of the finer kinds of Pears flourish on the eastern side of these hills, this is not the case on the western side. A neighbour of mine, who lives not many feet higher than I am, but who is on the western side of the hill, tells me that the Marie Louise will not succeed with him even on a wall, and yet here it flourishes as a standard.

But it is not only climate, but soil also which has much to do with success, or the contrary, in growing Pears. The practised eye of the professional gardener would no doubt detect by the cankered stem or stunted growth the real cause—namely, the soil—of much of the disappointment which the amateur fruit-grower experiences. Again, an illustration may put the information I would convey in the most forcible way for the warning of beginners in the art of gardening, and it is for them I write. In the immediate neighbourhood of the rectory I lived at in Westmoreland was a beautiful garden. It is beautiful still, and now the property of Mr. Schneider. The house which it surrounds was then occupied by the late Baroness de Sternberg, who had a very intelligent gardener. I admired his root-pruned pyramids and his no less beautifully trained trees on walls, and I thought I would plant a small orchard of pyramids, and also cover some walls with Pear trees. All my trees cankered and none did any good, nor have they done ever since, and I am now writing of what I did more than twenty years ago. On consulting this gardener he told me he had entirely made the soil for his fruit trees, for that the subsoil of the neighbourhood was such that most evergreens, as Laurels (and hence Cherries), would thrive in the natural soil, as would also Roses, Conifers, &c.; but Apples and Pears would not.

The conclusions I have arrived at are probably what may seem to the reader, as they are now to me, self-evident. First, that *climate* has very much to do with success in growing Pears; secondly, that *soil* is almost as important; and these, if unfavourable, may almost deter a beginner from attempting to grow Pears. But let him persevere: very much may be done to help Nature in both these particulars. A blackened wall, though not very picturesque, will absorb and retain heat and so help climate; and, further, a glass coping of 2 or 3 feet will still further benefit the trees. And as for soil, that is, of course, still more easily improved. I have tried a flagstone under the tap root in some cases with success. It will, however, be wise for any would-be grower of fruit to learn what sorts thrive in his neighbourhood, and with a good supply of these he can the better afford to risk a crop of the more tender kinds. I shall look with much interest for the lists of Pears, and

would suggest that where Pears have duplicate names they should both be given. I have heard more than one gardener assert that Brockworth Park Pear, for instance, is identical with Bonne d'Ezée. Opinions on this and kindred subjects will interest all growers of Pears.—WORCESTERSHIRE VICAR.

SOIL DIFFICULTIES.

I CANNOT quite agree with Mr. Luckhurst on one or two points in his otherwise excellent paper, and as the subject is such an important one I think it best not to let them pass without criticism. He very properly puts draining in the first place, when dealing with soil which is heavy, wet, and cold; but supposing it to be very heavy, say sufficiently so at an average depth of 3 feet from the surface for puddling or making bricks, as much of it is about this estate—the greater part of the kitchen garden to wit—then drains 30 feet apart are not near enough. At one time here none were placed nearer than 21 feet, and they were of a uniform depth of 4 feet, but experience has taught that in draining as in everything else there is no uniform rule for all soils and climates. There are clays where a 4-feet drain is too deep, and there are loose brashy soils containing water in patches where a depth of 5 feet, or even more, is decidedly advantageous. Generally speaking the deeper it is necessary to make the drains the wider they may be apart, but on mixed formations much more skill and knowledge are necessary than is generally brought to bear on the subject. On the heaviest part of this estate now the drains are placed only 15 feet apart; they are generally 4 feet deep, but if the almost pure clay is within 3 feet of the surface they are not dug so deep by 6 inches. The disposition, too, of the drains is of great importance; but as I believe all professional drainers are agreed that the drains should run down hill as much as possible, and not across it, and that they should meet the main drain so as to form with it, not a right angle, but an acute angle on the upper side, I need say no more on the subject.

I must now object to Mr. Luckhurst's "improved way" of applying lime, and say that the less "improvement" there is in the way of applying lime the better. I maintain that lime and manure never ought to be used together; while to mix fresh hot lime with stable manure is downright waste, as the lime would set free the ammonia, which would mostly escape into the air, leaving the litter behind hardly worth the carriage. Mr. Luckhurst may point exultingly to results, and say that his crops flourish in the mixture. Probably they do, and very probably they would if they had had a dressing of any one of the three principal ingredients separately—viz., lime, decayed weeds, or stable manure. Lime is very valuable for permanently pulverising heavy soil, it is also good for vivifying inert vegetable matter in old gardens which have been heavily manured for a long time, and in a non-calcareous soil it is of course useful as a fertiliser; but whenever lime is used in quantity it should take the place of manure for that season, or at any rate should not be dug-in with it.

Mr. Luckhurst's last paragraph goes far to prove the advantage of spring cultivation in preference to autumn, and this brings my memory to "A YORKSHIRE AMATEUR'S" question, "When should we dig?" I gave my opinion on the subject last year, and after a winter totally different from any with which I have had experience since I had the full charge of a garden I am more than ever convinced that heavy soil is best left firm till after the winter rains. I would dig nothing between the middle of September and the end of February. And here let me say that "A YORKSHIRE AMATEUR" has got hold of a very popular error when he speaks of digging to allow the ground to become frozen deeper. Frost does not enter dug ground so freely as ground that is solid, for the very simple reason that the dug ground lying looser holds much more air and consequently is much more of a nonconductor. By digging you may expose portions of the soil to the action of the atmosphere which were out of its reach before, but there is not nearly so large a portion of the soil actually frozen as there would have been had it been left solid. As far as I am able to judge from imperfect instruments our temperature was not lower at any time than 10°, and that only once for a short time, but much of the ground was frozen hard to the depth of a foot, and to this I attribute its good working condition at present. I have never known the ground work so well in the month of March before.

Those who have light soils need not trouble themselves much about when to dig. They can dig when they like without doing any great amount of harm; but heavy soils require very careful management, for if once pulled about at the wrong time they do not get right in one year, and sometimes not in two.—WILLIAM TAYLOR.

NOTES FROM MY GARDEN IN 1878.

GLADIOLUS.

BEFORE giving my experience of these fickle flowers I should like to say a few words as to Mr. Taylor's references to my greenhouse failures in the past year, and am sorry that even his experience fails to meet the case. He suggests with regard to Ixias that probably allowing them to seed has been the cause; they thus exhausted themselves. As a matter of fact I did not allow any of them to seed, as I am always too glad to get their flowers for the top of a tall stand, for which by their elegant and graceful forms they are peculiarly adapted. Nor were they dried off suddenly, and indeed were never taken out of their pots until planting time came round again. Nor can I see, even if they had been, why this should have been injurious, as those which are imported are left for weeks and months out of the soil and yet flower well. I have fancied more than once that the remedy he proposes for Lilium auratum is a correct one, and that were the imported bulbs allowed to throw their whole vigour into the leaves instead of sharing it with the flowers, that the deaths might possibly be avoided. With regard to his suggestion about Gladioli, I am afraid I cannot derive much comfort from it. It is with the choice Gladioli that the difficulties arise. The commoner sorts are not difficult to manage. His idea of potting them corresponds with what I have attempted in replanting again immediately, but it is manifest such a proceeding could only be adopted in either a large place or with a limited collection. And here again let me say that the great French growers dry off their corms as we do, and they say that their losses are comparatively insignificant.

This brings me to the special subject of this paper, my experience with Gladioluses in 1878. I changed entirely the place in which I grew them, and the piece I selected for them had not had any planted in it for nine years. The beds were prepared in the usual way in the autumn. The summer was not an unfavourable one for their growth, and as there was a good quantity of rain but little watering was required. The plants threw up strong stems and promised well for a successful blooming. I do not think, however, that my blooms were as fine as in the previous year, and at blooming time symptoms of distress began to appear, and when the corms were lifted as great a loss was experienced as I have had for some years. Now I do not intend to enter into the causes of this. My own judgment has been long formed, and I have seen nothing to make me alter; but as others differ from me I am contented to leave it, merely recording the fact. My corms came from various sources: many, of course, were of my own saving; a good number came direct to me from France, a few from my friend Mr. Banks, and a few also of Mr. Kelway's, and losses occurred amongst them all, and from the imported quite as much as from the home-grown ones. In collating experiences with others I find that one friend who grows them at Croydon, Canon Hodgson, had comparatively few losses, while my friend Mr. Banks says he never has had a more disastrous year. In the autumn of 1877 I replanted a few seedling sorts immediately after I had taken them out of the ground; these did well, as did also a few named sorts which I treated in the same way. I have therefore this year determined to try a few more. Should they succeed after this very inclement winter I shall most probably go in for autumn planting altogether. In estimating the comparative difficulty of keeping the various kinds I fancy that those which have most of the oppositiflorus blood in them are the most delicate. It is almost impossible to keep some of them. I have given up altogether attempting Madame Desportes, and I fear Ondine, another fine flower, must also be abandoned.

As far as our English taste is concerned, I must say that our requirements are met much more by the recent introductions of Mr. Kelway than by M. Souchet, for I cannot but think that this difference of taste does exist. We prefer a spike which is not only composed of large flowers, but one in which the individual blooms lie close to each other; and this latter seems to be a quality which the French do not care about. They prefer a more elegant, as they call it, to the more solid spike which pleases us. This I argue, not merely from the high encomiums passed by them on flowers which we consider

of little or no value, but also from conversations I have had with some of the growers upon the subject. Thus of the dozen distributed last year by Messrs. Souilhad and Brimelet there are but two which I think will find favour here; and these two, although novel in colour, I require some further acquaintance with before assigning them such a position as Murillo and Horace Vernet. The two I mean are Pasquin and Conquête. Now I have compared with this dozen half a dozen of those sent out by Mr. Kelway—Duchess of Edinburgh, Dr. Denny, Dr. Woodman, Scopas, Lady Perry, and Agnes; and there is certainly in my mind not a shadow of hesitation as to the great superiority of his flowers. If I take Duchess of Edinburgh, for example, we have here a spike with a very large and beautifully formed flower, having some eight or ten flowers open at the same time and closely laid in to one another. Then, again, Scopas is a fine flower of great purity in its whiteness, the flowers large and of good substance, and exceeding in size any white flower that I know—so good that I much regret that it has died with me; and we have to recollect that some of these flowers have been certificated years back, and that as each year Mr. Kelway carefully hybridises and selects his seed those recently exhibited are still advancing. Thus I see Orange Boven is announced as being let out this season, and I remember years ago awarding it a certificate at Manchester. Of course the stock has to be increased, and as in some instances this is a slow process years must elapse before a sufficient number can be obtained to send out. This does not always, however, imply that the newer varieties must be better, at least taking the French varieties, with which I am best acquainted, as an example. I do not think, for example, that any flower sent out from Fontainebleau during the last two years equals Murillo, which has been four or five years in commerce. Diamant as a white flower is far behind Ondine, Madame Desportes, or even the older Norma, its thin papery petals quite unsuiting it in our eyes for exhibition purposes. Why talk of exhibitions? As far as London is concerned autumn flower shows are things of the past; everybody is away, and so they do not pay: and this commercial aspect of the matter must unfortunately enter into all calculations. It has been tried over and over again, and in all instances the result has been failure. However good the show may be, it will only attract those who have a real interest in the flowers exhibited. Mr. Kelway brings up his magnificent stands of blooms and sets them up at South Kensington, and about fifty people come to look at them. He may get a medal for them, but uncommonly few orders. It is at provincial shows that they are seen; in the west of England especially, and in the north. I am told that they are shown well at Bishop Auckland, but I have also heard that many of the flowers shown there come from a long way south. If under these discouraging circumstances the Gladiolus still holds its own it is due to its intrinsic beauty as a flower, and there are assuredly few flowers more worthy of the care and attention of a horticulturist.—D., *Deal.*

MUSHROOM DIFFICULTIES.

After reading your able correspondents' remarks on the above subject I could not let them pass without forwarding you the following instance that came under my notice some three or four years ago.

I was living in a large establishment where Mushrooms were grown on a moderate scale, and previously to the time I am writing of there was an ample supply for the use of the house; but all at once a failure commenced, and no one could tell the cause of it. The spawn was the first thing that was blamed, therefore new spawn was sent for and a new bed made up, and the old and new spawn were tried side by side; but it was just the same as before—"no Mushrooms." Bed after bed was made up, but nothing but failures were derived from them; only fungus appearing. At last the man in charge of the Mushroom house (like your correspondent Mr. W. Bardney) blamed the coachman, he being a great advocate for medicine to his horses, so much so that on turning the manure the smell from it was most unpleasant to the worker, therefore it was suggested to the head gardener that they should try the droppings from the farm stables; he gave consent, and the cart was sent every morning to fetch them. The material was prepared as usual and a bed made up. At the same time fresh droppings were taken from the home stables and prepared the same as those from the farm, a bed of each being made at the same time, the same kind of spawn being used for both beds. The result was this: The bed made of the farm droppings proved a great success, producing a remarkably fine crop of Mushrooms, and the other proving a complete failure. It was tried again in the same way, and with the same results. These few remarks I think will prove to many that they should not, as is generally the case, rush to the conclusion that Mushroom failures must be either the spawn, the house, the altitude of the same, or the man in charge.—H. Charles, *Dynevor Castle.*

ROSES—DWARFS versus STANDARDS.

The long and trying winter just past has undoubtedly proved most disastrous to many Roses, especially those in exposed places, and those also on very cold and undrained ground. The suddenness with which the frost came unfortunately took many of us by surprise and consequently unprepared, so that nothing could be done but to leave the plants to their fate, as the injury done to them if meddled with when in a frozen condition with a view of protecting them is often greater than they would sustain if left without protection.

The great advantage of dwarfs over standards will most assuredly present itself during the spring and coming summer. I recall to mind the winters of 1861 and 1867, and the havoc then made by frost on standard Roses. In 1867 a great number of standards with me were killed outright, while many others were so debilitated by the effects of the weather that they had to be rooted out the next autumn. On the other hand the dwarfs, although they were severely injured, started into growth from below the ground, and in most instances appeared in the summer as if nothing had happened to them. It would be well, therefore, for those having dwarfs apparently killed to convince themselves that they are so quite down to the roots before doing away with them, as they may have latent buds beneath the surface of the ground uninjured. Dwarfs consequently are much to be preferred to standards, as they not only stand a favourable chance of recovery after frost, but they can be protected with much greater facility and neatness than standards with materials such as cocoa-nut fibre, half-decayed litter, or even leaves placed a few inches thick around the plants to be cleared away or levelled on the beds or borders when all fear of severe frost is past.

In very exposed situations, too, dwarfs are a decided gain over standards, for once established stakes can be dispensed with, neither do they suffer from rough winds anything like their elevated congeners.

The rough manner in which the standard Briar is collected and made to do duty as a foster parent to the Rose must be detrimental to the longevity of the Rose budded thereon. This must be clear to all. How often after the Briars have been hacked out of the ground are they left for days exposed to the weather by those collecting them before they reach the planter's hands? Are there many other plants or trees that would endure the treatment the Briars undergo, and then exist for two or three years?—Oxonian.

NOTES ON PRUNING SHRUBS.

I think I may venture to assert that the pruning of deciduous trees and shrubs in nine gardens out of every ten is a point on which comparatively little attention is bestowed. Whether it is a national inborn property to neglect the pruning of trees and shrubs I know not, but in the race for coniferous plants that has of late prevailed the value of deciduous shrubs has to a great extent been lost sight of. They were chiefly employed for filling up between the Conifers, and as soon as they had fulfilled that duty were transported to some out-of-the-way plantation, or, as it happens in most cases, condemned to the rubbish heap to be burned. This deplorable proceeding is, however, happily fast becoming obsolete, and the intrinsic value of deciduous shrubs and the harmonising effect they produce when planted with an idea to permanence, along with Conifers in shrubberies, is now becoming better understood and appreciated.

As this is the time when shrubberies are gone over with a view to pruning, &c., it will be well to draw attention to the way the deciduous shrubs are in many instances manipulated. It is common to find them so slashed and reduced as very often to destroy or greatly reduce the blooming capabilities of the shrubs. Now it is imperatively necessary to check their dimensions, especially if growing in close proximity to Conifers, but this can be effected in a manner tending to promote the free flowering of the shrubs. Such shrubs as Weigelas

Deutzias, Philadelphus, certain Spiræas, Forsythias, Guelder Roses, &c., produce their finest flowers on the strong growths of the preceding season. Therefore all the old worn-out wood should be cut away to make room for the full development of the young flowering wood, which may be slightly shortened back according to the strength of the shoots, only very few being shortened more than one-third.

By the above process the shrubs will be kept within reasonable bounds and repay the extra labour bestowed upon them with a plentiful supply of flowers.

To preserve the rich yellow colour of the Golden Elder it must be cut down to the ground every spring. The Tamarix also should be well shortened back if it is desirable to keep it compact. To promote the full beauty of the Ribes section pruning should be deferred until directly after the flowering, when a liberal use of the knife is requisite. That much-neglected shrub Rhus Cotinus should have sufficient room to fully develope itself in order to produce its transparent panicles of floral appendages in perfection. It forms a beautiful object if planted singly on a lawn.

The Scarlet Dogwood should be considerably shortened back as soon as it commences growing. Lilacs grown in the form of bushes very often produce hosts of suckers. All these, save one or two of the strongest, should be removed annually, and care should be taken to remove the roots of the suckers, otherwise they increase still more abundantly. Any useless spindly growth in the centre of the bushes should also be removed in order to admit air and light to the flowering portions of the shrub.

Roses are in many instances pruned back year after year without any old worn-out wood being taken out, thus forming a thicket of weakly growths. The time will shortly be at hand for a partial reduction of the heads, commencing by clearing out the centre, to be followed by further thinnings after the first blooming season is past, if young vigorous shoots should spring from the base.

With regard to deciduous trees, the general practice is to plant them and then let them take their chance. We might well in this respect take a lesson from our neighbours the French. They prune their deciduous ornamental trees as regularly and systematically as they do their Peach trees. Any branches that cross each other are first removed; those that show a tendency to grow inwards follow next. Any little sprig that is likely to shade its neighbour is also removed, and then the *tout ensemble* of the tree is considered to see if any leaders require shortening in order to preserve the regular shape of the tree, which is then carefully fastened with willow bands to a stake sufficiently tall and strong to keep it in an upright position. Our municipal governing bodies would no have to complain of so many failures of street planting if the above details of management were adhered to.—A. W., *East Cliff House, Lincoln.*

THE BIRDS AND THE GOOSEBERRY BUDS.

I LEFT home on February 10th. At that time, after a careful inspection, I had the pleasure of finding the buds of the Gooseberry bushes were uninjured. I returned on the evening of February 22nd. During my absence there had been a heavy fall of snow and sharp frost. I took an early opportunity of inspecting my trees, and found that the birds—chiefly, no doubt, bullfinches—had quite cleared the bushes of buds. Under the larger trees the ground was sprinkled with the shells of buds, showing what a feast had been going on above. I must state that as a precaution I had, as in former years, caused thin twine to be crossed and recrossed over the bushes, which had before usually deterred the feathered thieves; but such are their numbers and such the struggle for existence that, in spite of string protection, they have this year eaten the buds. I happened to have a new gardener, and he, when I was away in the autumn, had pruned the bushes somewhat close. This was a mistake, for, warned by experience, I had left the tapering ends in former years, as on them the birds could not balance themselves, and I had always had some fruit; now all are gone. I am an authority on gardening matters with my parishioners, and now they come to me (that class of cottagers who add to their living by sale of fruit), and they say, "What are we to do, sir, now? the birds have served us out so very badly this year."

Now for my advice; for the game-preserving landlords, the police, the sentimentalists, and the gun license are all against us gardeners. What are we to do? Well, Gooseberries vary in habit of growth; some are spreading, others pendulous, and some fortunately of upright growth; such are Early Sulphur or Golden Drop, Red Champagne, Pitmaston Green Gage, and others. Bushes of these erect growers can each be bound tightly with tar string or wild Clematis, or any string binder; they can be so closely tied as to resemble a stable besom. So tied in the autumn the winged thieves can only at most get at a few outside buds. When March comes untie; the buds are too far gone to be dainty morsels for the "dear" birds, and the crop of course is saved. Again I say, do not prune the ends if you want a full crop; never mind the appearance of the trees.

As to birds I have loved them all my life. I am a practical ornithologist and a great reader of works on birds. But love of them and silliness in regard to them are two different things. Food of all sorts is dear enough, and too dear; and to allow a considerable portion to be deliberately destroyed is the act of one scarcely loving his fellow creatures or caring for their wants. The bird pest is not only an annoyance, but an injury to the products of the country. In regard to the Gooseberries, those bushes growing either pendulous or spreading cannot be tied up, and hence I say cultivate those only of upright growth, which can be tied very closely, so that the most daring and clever bird-burglar (the Mr. Peace of his race) cannot do much injury.

In conclusion I would say that I can fully understand an inhabitant of a villa near (almost in) London, a man who rarely sees any winged creature save a dirty London house sparrow, quite rejoicing over the birds in his garden, and waxing sentimental over a blackbird or thrush and their nests; but in the real country it is altogether different. In and near London the balance is destroyed one way; in a wooded game-preserving country the balance is destroyed in the opposite direction. I love birds, and remember, just remember, seeing a forked-tail Kite hovering in his glory. I now and then yet see a Windhover at work gracefully stalking the small birds of the hedge. I deplore the extinction of the Waxbill, the Hawfinch, the Hoopoe, and others. I scarcely ever see a Goldfinch, and I used to see Thistles alive with them. But those birds which injure us most are left, and their superabundance is destructive to the food of man. The remedy is in our hands to a degree; let us not shrink from applying it. This is common sense, not cruelty. It is a matter in which Londoners and dwellers in large towns and their suburbs are quite out of court. It is not for them to speak on a subject foreign to their knowledge, and far away from their experience.—WILTSHIRE RECTOR.

SWEET-SCENTED CYCLAMENS.

I OBSERVE with regret that though the delicious fragrance, which was not uncommon in Cyclamens forty years ago, has not much stress laid upon it now. Much as I admire the great improvements in size and colour, I set much higher value on the peculiar and most delightful fragrance, which I so well remember, and now can never meet with. I have asked for sweet-scented Cyclamens at Messrs. Carter's and at other equally noted establishments, and have been willing to pay extra price for them. Roots have been sent accordingly, but when they flowered the scent was too slight to be worth speaking of. The roots of my remembrance had thirty or more blossoms, not large, but one plant alone filling with fragrance the hall in which it stood. I had begun almost to despair, but a friend gave me last autumn a small root which he said would prove to be such as I have been so long seeking. Unfortunately it was injured by severe weather in December, and all the flower buds but one have perished. That one, however, is very much more fragrant than any I have met with for years, and I trust the plant will prove eventually to be such as I desire. Meanwhile, I think there must be many who concur with me in wishing that the quality of fragrance in this lovely tribe should have more weight attached to it.—E. R.

HARDY BROCCOLI.

IT will, I fear, be found that the cold of the past winter has been very destructive to the Broccolis. It would be interesting if your readers would state their experience as to the kinds which have suffered least from the frost, and this information would, moreover, be useful as a guide in choosing varieties to be grown in coming years. Perhaps it is rather early to say what Broccolis have not suffered; but, so far as I

can at present judge from a careful examination of the varieties I have grown, the following seem to have best resisted the frost:—Of thirty plants of Garraway's Late White all seem perfectly sound and unharmed; of forty-two of Watts's Excelsior six only are killed; and of other kinds which have suffered least I may mention Snow's Winter White, Carter's Champion, and Clifton White. It will be seen that four out of the five varieties I have mentioned are late varieties. Can any of your readers name any earlier varieties which have withstood the frost?—R. C., *Clifton.*

A VISIT TO JAPAN—THE IRIS GARDENS AT HORI KIRI.

POETS have sung the praises of the Rose, graphic descriptions have been penned about the Lily, and, indeed, about every other florists' flower; but allow me to offer a few remarks concerning an old favourite which I think deserves a greater share of attention from lovers of the beautiful than it gets at present. I am not going to speak of lanky-looking plants of rather sober hues which one is accustomed to see forming the background of herbaceous borders in old-fashioned gardens, nor of the choicer varieties only met with in the gardens of connoisseurs, and then perhaps only flowering after very careful cultivation, but of Iris in her natural element, luxuriating in the gardens of Hori Kiri near Toki, in the bright land of the rising sun.

An old resident having told me that he had been some seven years in Japan before he knew the whereabouts of this garden (the native nurserymen being very uncommunicative on the subject), I at once determined to go and see this wonder of the eastern land. So starting from Yokohama by the early morning train, attended by my interpreter, I was soon fairly on my way for the great metropolis. The light porous soil had become dry and parched under the fierce sun during the brief period of fine weather we had just experienced. Brief as it had been, we found it had given the natives an opportunity of harvesting their somewhat limited crops of Wheat and Barley, which were stacked in neat sheaves on the banks, while wherever it was practicable the ground was already covered with water, preparatory to transplanting the Rice plants. The Hyaksho (farmer) and his sons and daughters are all busy, either ploughing, if so it can be called, the submerged soil with his rude one-horse plough, or else planting out the Rice for his autumn harvest. Every square foot of ground that can be irrigated is now used for Rice plants, while the higher portions are generally cropped with Millet, Sweet Potatoes, &c., the whole presenting more the appearance of closely cultivated allotment ground than that of farms belonging to different proprietors. The snug farm houses with their thickly thatched roofs, warm in winter and so cool in summer, and with their neatly hedged-in gardens generally boasting a few choice flowers and shrubs, present an air of comfort which strangely remind me of the old country. Agricultural labourers they all are, whether masters or hirelings, civilisation not having as yet added the wealthy farmer with his horse-riding bailiffs to the scene. Hunting and hawking have come to the ground with the sudden changes in young Japan, and very few seem to regret that two-sworded men are now an institution of bygone days. Past villages of wooden houses our train speeds quickly on until we reach our terminus at Yeddo—a fine station, thoroughly European in its appearance. The rest of our journey is by road, so we jump into two gin ric shays, and are soon on our way again. One word to those who are perhaps unacquainted with Japan: No horses are employed to drag us, but two slight-built men drag me and my banto in two light two-wheeled vehicles at the rate of about six miles an hour over the well-made road. Well made indeed, and every need that it should be, for many a naked foot passes swiftly over it. On and on we go, past Nakamise, the fine Europeanised main street, with its large shops and trees planted European fashion against the kerb stones, then through other thoroughfares lined with less pretentious wooden buildings, then past dreary-looking rows of houses, once tenanted, as my banto informs me, by the noblemen and their retainers when making their annual visit to Yeddo, but now let out to coolies or in many cases standing empty. Moss and lichen have had hardly time to grow on the ruins of the departed feudal system in Japan, rendering it, as at home, one of the time-hallowed institutions of the past; but in Japan it is but a thing of yesterday, and by my side rides one of the sons of one of the late nobility, now glad to let himself out to a foreigner in order to get a chance of starting in the world now so altered for him. He does not complain, but very sensibly remarks that it is the effect of civilisation; but for all that he loves to point on the map to the place that bears his ancestors' name, and where for generations his fathers held sway.

Now we cross the fine Adzuma bridge over the Sumidagaun river, here nearly a quarter of a mile in breadth, and then our road lies along its bank, past the Rice swamps, not "dank and lone" as Whittier describes the American Rice plantations, but sweet and fresh with the clear water ever flowing through them, and tenanted by busy men and women, whose happy faces seem to prove that man may be after all much more of an amphibious nature than we westerners generally suppose. No stockings to get wet and uncomfortable, no trousers to turn up, and no horrid boots to drag off and on, but naked legs and feet grown dark brown in God's sunlight. Now on, past Lotus fields where women are wading knee-deep searching for the roots (which my boy tells me are excellent for food), bringing vividly to my recollection the blaze of glory I witnessed last summer when they were full in bloom. On and on, under shady avenues of Cherry trees, past the famous Ushi no Gozen Temple (shrine of the god of oxen) and its pretty tea gardens, till our road narrows into a lane, and becomes rather hard travelling for our gin ric shay men. We jump out and walk, for I have hardly got used as yet to using fellow humanity as a beast of burden, notwithstanding I have no doubt the thirty-three thousand gin ric shay men in Tokio would compare very favourably with the same number of cabmen in London streets as far as contentment and health are concerned. Hundreds of other vehicles are going the same way, and I find many of them with two occupants, while one stalwart fellow actually runs with three! Passing by the Namewaku Cemetery on our left, the site of a battle between nobles and peasants in the olden time, with its great rough stones reared as monuments to the fallen worthies, we notice several gardens on the right cropped with Pæonies, Lilies, and other flowering plants grown for the Yeddo market. We enter a garden of about one acre in extent, which again reminds me very much of home, and get into conversation with a man who is busy cutting Lily blooms. I ask him if he is the proprietor of this ground; he answers, "Yes—that is, joint proprietor with three others." Only fancy how delighted Wordsworth would have been with Japan, for here every cultivated rood must of a truth maintain its man. I look inside a farmhouse door, inquiring the way to a neighbouring Lily grower's house. There stands the master of the house, sans hitoyemon (loose coat) sans gobi (girdle) sans everything save a loin cloth, high busy cleaning rice. He does not seem to know what we want, but his little daughter does, and, after picking up her brother (nearly as big as herself) and getting him safely on her back, she volunteers to show us the way. We make a few more calls and then again start for our destination, now meeting more and more travellers returning with splendid Iris blooms in their hands, which in a measure prepare me for a grand sight.

Buddhist priests especially appear to take a lively interest in this plant, judging from the numbers I met, doubtless because it plays an important part in the decoration of their shrines. Shaven and shorn, and arranged in their gorgeous robes they resemble Catholic priests more than anyone else. At last we arrive at the gardens, and then we catch a full view of Iris in all her virgin glory, her head bright with rainbow hues as in classic legend of old. I had expected to see a grand sight, but I was completely astounded with that which now met my eyes. Thousands and thousands of plants are arranged in sunken beds, flooded during the summer months with pure fresh water, and cut out with due regard to effect, with grassy raised paths between, and hedged in by grass-clad knolls, on the top of which pretty little tea houses are built, and up and down the sides of which the Yeddo children tumble in unrestricted glee, their limbs unfettered by tight-fitting garments, and their knees in no danger of poking through their trousers.

Of course gorgeous bedding-out is no novelty to an Englishman who has seen the London parks, but this sight in early June was so thoroughly unique, so absolutely astounding, that I could only look on in wonder and amazement. The owner of the premises comes to us dressed in extremely unpretending style, and begins to show us round. In answer to my inquiries about the seed he informs me in true nurseryman-like style that he only saves seed of the very best varieties, bringing to my mind the advertisements of those painstaking seed firms

at home who neither adulterate seed nor ever allow semi-double flowers to seed in some cases. Semi-double Irids there are here in abundance, some looking more like immense double Petunias impaled on long stalks than anything else, and many others having six immense outer petals, forming an almost perfect circle, with an inner row beautifully reticulated and shaded with a great variety of colours from light rose and lavender to the deepest crimson and cobalt. Our host begs us to take some refreshment, and after drinking tea and eating cakes *ad libitum* we feel refreshed and pursue our examination of the place. Nearly two hundred varieties of Iris are in those beds, and with one or two trifling exceptions these are kept true to name, and arranged so that the colours harmonise most beautifully. Hundreds of visitors of course are there, some drinking tea, some raki, but none either misbehaving themselves in any way or producing black bottles and sickening parcels of sandwiches with the intention of littering the grounds with sundry greasy papers. One old gentleman, it is true, seemed to be endeavouring to make an oration, but whether carried away by the influence of raki or the beauties of the scene before him I am unable to say. Probably both had their share in it.

A number of young army officers are walking about, seeming very proud of their stylish European costumes and their dangling swords; dapper little fellows they are too, and in these times, I fear, sorely needed to keep down the old Japan fanatics. Indeed since poor Okubo's assassination the government ministers are obliged to have a mounted escort through the streets. Glancing round we notice a glorious bed of Lilies of the Martagon type mostly, but of various colours, all in full bloom, while in a shady nook we find an exquisite Fern grotto, for making which the Japanese have so long been famous. I could not help wishing that one or two of these clever Japanese could be exported to England to teach some of our clumsy artists how to make something more picturesque than the strange conglomerations for stowing plants and flowers generally yclept rockwork one often finds in the corner of a villa garden, looking more like ash heaps than anything else. I remarked to our host that I think with so many visitors he must be getting rich, but he draws a pitiful face and says that his ten servants run off with all the profits. Night is coming on, so we are obliged to leave, and inquiring how much we have to pay, are told 4 sen., about 2*d*. in English money; surely 2*d*. never was better spent, and after this I did not wonder at the proprietor not getting rich.

Our gin ric shay men have nicely refreshed and rested themselves, and start on their homeward journey as fresh as young colts, so the way seems much shorter in the cool evening than it did in the morning. Before long we are across the Sumida bridge and are passing the great temple of the Kaw on Ji on the Kiu rui Zm, or Golden Dragon Hill. Now we get out and walk along the long stone pavement up to the stately edifice, certainly the most stupendous wooden structure I have yet seen. As I look at its immense wooden pillars I think of the number of coolies that must have been required to rear them. My banto informs me that inside the temple, hidden from sight, is a little golden image of a dragon, which the common people believe will strike them with blindness if they look upon it. This is said to be the veritable image that a certain tycoon some three hundred years ago carried into battle with him in his belt, was victorious, and then in gratitude to the god raised this stupendous structure. We see the poor people performing their brief devotions with their children on their backs, well pleased at the sight of the flower-decorated and taper-lit shrine. As we turn away my banto laughs at the superstition of the people, like a great many more of the young and rising race in Japan, who know just enough to make them disbelieve the old beliefs, and yet not enough to make them trust in Him who is both the Rose of Sharon and the Lily.—ISAAC BUNTING.

LINUM TRIGYNUM.

I HAVE seen several remarks made upon this beautiful plant lately, but I am surprised to find it recommended as a stove plant when it will grow and flower just as freely in cooler quarters with half the trouble. My mode of culture is as follows:—During March I take the cuttings, which strike very readily in a vinery or Peach house. These are subsequently potted off, and about the end of May are planted out in a warm border, paying attention to the watering, where they grow very rapidly and soon make good plants. In September they are carefully potted and placed in a close pit for a few days and syringed occasionally overhead. When they have become established in the pots they are placed in a greenhouse where a fire is employed during cold or wet weather. In October they are fine bushy plants with healthy foliage, and flower freely throughout that and the two following months. In January they are cut back and placed in a warm vinery. As soon as growth commences they are potted and treated similarly to the cuttings.

Linums, Bouvardias, Libonias, Cyclamens, and Eranthemum pulchellum, all succeed well planted out in summer. Gardenias also do well in a cold frame during the summer, having the lights over them only when the weather is very wet or cold.—G. H., *Buckingham*.

VINES AND PEACHES IN THE SAME HOUSE WITHOUT HEAT.

WHEN I previously related my experience I advised growing the Vines during the first season without heat, as I had concluded their being forced at that early stage was detrimental to their future well-being. I also noticed that, for a special reason, in my combined Peach house and vinery I intended to start my Vines this the second season also without fire heat. To go further than this I should expect failure the third season. Thus far with young healthy growing Vines I do not think it possible to have the wood sufficiently ripened to guarantee the securing of good fruit. Last season, with four 4-inch pipes made as hot as it was prudent to make them, I failed in ripening some varieties of my Grapes satisfactorily, and in the latter end of August I had to secure more heating power by adding a flue heated by two fires. A heavy crop made the difficulty greater; but our climate, I feel quite certain, was the principal difficulty.

Regarding the combination system much greater authorities than myself have already spoken, but I may just say that with sufficient heating power to admit free ventilation when the Peaches are in blossom I do not think there is the slightest risk of failure. Later on the needs of the Vine and the Peach are more in common, and the difficulty of growing them together disappears.—JOSEPH WITHERSPOON.

COTTAGERS' HORTICULTURAL SHOW.

CAN any of your readers give me any suggestions as to starting a small horticultural society for cottagers? This is a purely agricultural district, thinly populated, far from a large town. The peasantry are comparatively well off, for though there is no approach to the high wages of towns, there has been little actual poverty until the late severe winter. Most cottages have good gardens attached, and there are a good many allotments. Very few of these, it seems to me, are made the most of, and I wish to encourage a greater interest in gardening as a means of innocent amusement, and as an antidote to the attractions of the public house. Certainly the recreations of the agricultural labourers are few and far between. I shall therefore be grateful to anyone having practical experience in such matters if they will take the trouble to give me any information through your columns as to rules, expenses, prizes (what is suitable for these, for there is very little money), judges, classes, times to show, &c. In these bad times we should be forced to do with a very few pounds, or even shillings, as the farmers and labourers are both in need of all they can get.

I have been led to write to you by having seen an article on such a society as I propose in the first year of the "Cottage Gardener" referring to one established in 1837 at Pytchley by the Vicar, the Rev. Abner Browne, who published a little pamphlet on the subject, which, however, I am sorry to say, appears to be out of print. The village schoolroom would be the only place available for the show, and the only attractions would be the produce exhibited, there being no brass band or other inducement to visitors. Suggestions on the subject may prove useful, I take it, to others besides—A YORKSHIRE AMATEUR AND CURATE.

POTTS' SEEDLING APPLE.

POTTS' SEEDLING originated with Mr. Potts of Ashton-under-Lyne, where it is highly esteemed. There are many other excellent varieties of Apples, the history of which is very obscure. The following are highly and deservedly esteemed in Lancashire and Cheshire, and no collection should

be without them:—Lord Clyde, Magnum Bonum, Peter Jeffrey, Ringer, Withington Welter. The first—Lord Clyde—I raised and sent out some years ago. Withington Welter is new and not generally known. It originated from a cottager at a place called Withington in Cheshire a few years ago, and for size and quality has a high local celebrity.—B. W. WHITHAM, *The Nurseries, Reddish, Stockport.*

NOTES AND GLEANINGS.

WE are authorised to state that their Majesties the KING AND QUEEN OF THE BELGIANS have been graciously pleased to intimate their intention of honouring the Royal Horticultural Society with a visit at their next meeting on the 25th inst. It is hoped that this will be made the occasion for an unusually grand display of spring flowers, for which the meetings of the Society have been so remarkable.

—— THE annual dinner of the HORTICULTURAL CLUB took place on Tuesday the 11th inst. at the Club house, Arundel Street, the chair being taken by Mr. John Lee, and the vice-chair, in the unavoidable absence of the Hon. and Rev. J. T. Boscawen, by Dr. Hogg. A very agreeable evening was spent. According to the rules of the Club but few toasts were given. That of "the Visitors" was responded to by Mr. Hovey of Boston, who gave an interesting *résumé* of the comparison of his visit now with one made twenty-five years ago; the "Prosperity of the Club" by the Secretary, who stated that a further sum had been invested in the funds, and that no better proof of its prosperity could be given.

—— THE date of the HORSHAM ROSE SHOW, published on page 194, is July 1st, and not July 2nd, as we were informed last week.

—— COVENT GARDEN MARKET now presents a very gay appearance, owing to the numbers of profusely flowered Primulas, Cytisuses, Cinerarias, Azaleas, and Cyclamens brought in by the growers every market day. We recently observed some good specimens of the old greenhouse favourite Kennedya monophylla, with an abundance of pendulous racemes of purplish flowers and dark green foliage, which render it deserving of cultivation everywhere.

—— A CORRESPONDENT writes to us as follows on the VITALITY OF SLUGS:—"As our kitchen garden was badly infested with slugs last season I was in hopes the severe winter would have exterminated them, but on the first wet day after the frost dozens of slugs were crawling about the walks. During one morning one of the kitchen garden boys gathered a 3-inch flower pot full from a piece of autumn-sown Cabbage plants not more than 30 square yards. I think the best way of thinning these pests is to persist in gathering them every morning soon after daylight."

—— AMONGST tropical fruits rarely seen in the London fruiterers' shops we lately observed the CUSTARD APPLE and the AVOCADO, or ALLIGATOR PEAR. The former is the product of Anona reticulata, a native of Brazil, but largely cultivated in the East and West Indies. It is described as extremely luscious and wholesome, but owing to its dark and untempting exterior it is not esteemed very highly by Europeans. The latter is borne by Persea gratissima, a tree of the Laurel family, and a native of the West Indies. The fruit, which resembles a large Pear, is said to be of very rich and delicate flavour.

—— MR. B. COWAN writes to us as follows on the WEATHER IN NORTHUMBERLAND:—"The continuation of the severe winter is still severely felt in this district. Up to the 13th inst. we had a full fortnight of genial weather, suitable to the hurrying forward of operations, already, unfortunately, too long delayed. On the day mentioned a snowstorm occurred, followed by a severe frost of 16°, and at the present time sleety and snowy weather is still continuing. In most cases the common Laurels are nearly all killed to the ground; Laurustinuses, Stocks, Wallflowers, Hedera algeriensis, and many other plants are destroyed. It is very trying weather for those who possess no better convenience for raising early Melons and Cucumbers than dung frames."

—— "IT may interest some of your readers," writes "J. W. L., *Brith*," "to know that COCKSCOMBS DRY WELL. Last autumn, noticing some that had done duty in the conservatory about to be thrown away, I cut them off close to the soil, and hung them up over the kitchen mantelshelf. In a fortnight they were well dried, and now look as well as ever."

—— SOME charming SAXIFRAGES are now blooming on the rockery at Kew, from which we select the following:—S. Rocheliana, native of Austria, a diminutive species with silvery foliage and white flowers, bearing a resemblance to the well-known S. Burseriana, but the latter has needle-like leaves and reddish peduncles. S. juniperifolia, from the Caucasus, has a compact habit with flowers clustered on short peduncles; the numerous long stamens and bright yellow anthers render it very distinct. S. oppositifolia var. pyrenaica is a pleasing variety with large rose or purplish flowers and minute dark green foliage, easily distinguished from the typical British species. Very attractive also is Anemone angulosa with trilobed leaves and an abundance of light blue flowers. No lover of this class of plants should be without it.

—— "CURLED GREENS," writes "A KITCHEN GARDENER," "should be grown in every kitchen garden. With plenty of manure at the root they will grow well in any kind of soil from a light sand to a heavy clay. They are not a choice vegetable, but for spring use after a winter like the past they are most acceptable, especially in a kitchen like ours where about sixty people have to be supplied daily."

—— AN extremely showy plant for the stove when well grown is DALECHAMPIA ROEZLIANA ROSEA, now flowering at Kew. The flowers are in clusters subtended by two large subcordate pink bracts; the leaves long, oblanceolate, and somewhat drooping. We also recently observed this plant well grown and flowered in one of the Pine stoves at Wimbledon House. A brisk heat appears to be requisite for bringing out its full beauty, as when grown in a cool stove the charming rosy clusters are not produced sufficiently above the foliage of the plant to be seen to advantage. It grows freely in a mixture of loam and peat, the latter predominating.

—— THE following CUMULATIVE AMOUNT OF FROST IN CUMBERLAND has been forwarded to us:—December, 421°; January, 318°; February, 138°. Total, 877°, or 9.74° each night. The mean temperature during the three months was 29.3°, maximum in shade 49°, minimum 4°. The thermometers were placed in sparred box 4 feet above ground, 1145 feet above sea level, and about forty miles from each coast at Lady Shield near Alston.

—— A CORRESPONDENT of the *Daily News* states that the climate of PIETERMARITZBURG is excellent. The town, which is 2000 feet above the sea, stands in a valley completely surrounded by undulating hills, and almost every house has a large garden round it, with any number of trees. Vegetation is most luxurious. When he first arrived there Peaches, Grapes, and Apricots innumerable were ripening in a garden round their mess; while Pine Apples were to be seen growing like Strawberries at home, and are used, as Box is used in England, for a border to the garden paths.

—— AN efficacious mode of CLEANSING FRUIT TREES is says a foreign correspondent, first of all to thoroughly wash the stems with a cloth in clean water; then rub on a solution of potash (1 lb. of potash to 30 lbs. of water). The result will be a clean bright stem, devoid of moss, lichen, and superfluous bark, which tends to hinder the full development of the trees.

—— THE process of WINE MAKING IN CALIFORNIA does not, lately observed the *Rural New Yorker*, much differ from thrashing grain. De Turks' winery crushes 40 tons of Grapes daily at Santa Rosa. It requires two men with scoop shovels to feed the machine, which is something like the cylinder of a thrasher. The juice pours out into the receiving tub below in the form of a stream as large as a man's wrist. Thence it is pumped into great tanks, holding usually 2000 gallons. The husks are placed in other tanks, where they ferment. There is a very decided smell of sour mash about the establishment; but each night the place is scrubbed and washed as clean as water can make it.

—— THE USES OF FERNS.—"Those who have been fairly inoculated with the love of Ferns will be interested to learn that many species of these beautiful plants are used not only for food and medicine but for economic purposes. As food they are chiefly useful to the aboriginal inhabitants of some foreign countries. In the larger of the exotic Ferns, the tree-like species, the inner part of the stem, stipes, or rhizome—corresponding to what would be the pith in other plants—and sometimes the whole of the tuberous rhizoma, is eaten generally after being boiled. In India some of the natives boil the tops of one species of Fern and eat it with shrimp curry.

Amongst ourselves two of the most beautiful species—the Bracken and the Male Fern, are said to have been sometimes used as ingredients in the manufacture of beer; whilst one foreign species, Aspidium fragrans, is actually stated to have been used for making tea. Our native Maidenhair used at one time to furnish a principal ingredient for a syrup called "capillaire." The rootstock of the Royal Fern (Osmunda regalis), was in times gone by reputed to possess the quality of healing wounds, whether applied to them externally or taken inwardly in the form of a decoction. Its outward application was considered a specific against bruises or sprains and good for bones broken or out of joint; and, taken inwardly, it was also believed to be good for colic and for splenetic disorders. In some parts of Europe its rootstock is said to be used, after being boiled in water, for the purpose of starching linen. A pleasant and familiar inhabitant of our lanes and woods, the common Polypody (Polypodium vulgare) has had ascribed to it by ancient herbalists various medicinal qualities, amongst them being the power of curing coughs and asthmatic affections, the dried rhizomas being powdered for the purpose and mixed with honey."—(*The Fern World*, by FRANCIS GEORGE HEATH.)

NOTES ON AURICULAS.

As the time is drawing near when these beautiful flowers will be in bloom a few notes on their culture will not be inopportune. It must be a great pleasure to old florists to see the Auricula coming to the front again. In the north they are grown as much as ever, and the weaver as well as the merchant takes great delight in their culture; and now that the Northern Auricula Society have united with the southern growers Auriculas will probably be as largely grown in the south as they were when the old growers of the north and south competed with each other at the "Horns" Tavern, Kennington. Those who contemplate the culture of these charming spring flowers must not think that they will be able to obtain the best varieties that are seen at exhibitions, for some of them are almost priceless, at least to the owners of them, and scarce varieties are only procurable by exchanges of plants. But there are many good varieties that are readily procurable by purchase, and these if judiciously fertilised will yield some beautiful seedlings.

Auriculas are propagated by seed and offsets. The seed should be sown thinly in a pot as soon as ripe, the pot being placed in a cold frame or under a handlight; cover the pot with a piece of glass, and keep the soil regularly moist. The seedlings continue coming up at intervals during the winter, as they do not all appear together. When large enough to be handled prick them off round the sides of other pots, and pot them singly when they are large enough for that purpose, and thus grow them on until they flower.

Offsets may be taken at different times when large enough to handle; but the best time is when the plants are being repotted, as they may then be removed more easily than at other periods. Insert them singly in small pots, using sandy soil, and place them under a handlight, keeping them close until they are rooted, after which they may be repotted and treated as established plants.

The first week in May is the best time for repotting the principal collection. The compost should consist of three parts of fibrous loam, one part of well-decayed cow manure, one part of leaf soil, and sufficient sand to keep the whole open, adding also a little powdered charcoal. Remove all the old soil from the plants, and if affected with canker cut it away with a sharp knife. After being potted water the plants lightly, and place them in a cold frame having a northern aspect. The frame should be kept rather close and shaded from afternoon sun till the plants are established. The flower stalks should not be cut off when the blooms fade, but should be left to wither naturally. Remove all seed pods except from those plants that are wanted for seed, and which should not be repotted, but should be placed on a shelf in a cool airy house or in a cold frame.

After the plants have recovered from the effects of the repotting they should receive abundance of air, removing the lights altogether during clear weather, as the plants are greatly benefited by night dews, but place the lights on during rainy weather. Alpines may be exposed altogether. Remove all foliage as it decays, and by the beginning of October the plants may be placed in frames facing the south, and there they may remain throughout the winter.

Auriculas are very subject to green fly, which must be kept down by fumigation, or the insects may be brushed off with a camel's-hair brush; but fumigation is more effectual, yet it must be done with great care or the foliage will be injured. As the winter approaches the plants will only require just sufficient water to keep them from shrivelling, but when it is applied it must be given thoroughly. During severe weather they had better not be watered at all. They will not require any protection, unless the frost is very severe, until they are top-dressed, when they must be protected, or the young flower stems may be injured. The commencement of February is about the best time to top-dress them. Loosen the surface soil carefully with a pointed stick, taking great care not to injure the roots, and remove the soil to the depth of 2 inches, which space should be filled up with equal parts of loam and well-decayed cow manure. Give the plants a good watering before they are top-dressed, and from this period they must be well looked after and must never be allowed to become dry. Search the frames at night for slugs, or they will soon nibble the young flower stalks as well as the foliage. As the flower stems advance and when the first flowers are seen the plants should be removed to another structure, and be shaded from the sun to prolong their beauty. If they are wanted for a certain date and any are not out a little fire heat may be advantageously employed; in fact when a little fire heat is used the flowers expand better and are more flat, but in the south they are generally forward enough for the shows without applying fire heat. As they go out of bloom remove them to their summer quarters and repot them as before advised.

As the plants travel well at this period just as the flowers are showing I append, for the benefit of intending purchasers, a list of a few good varieties.

Green-edged.—Apollo (Beeston), Apollo (Hudson), Alderman Wisbey (Headly), Lovely Ann (Oliver), Col. Taylor, and Page's Champion.

Grey-edged.—George Lightbody (Headly), Maria (Chapman), Alexander Meiklejohn (Kaye), Robert Traill (Lightbody), Col. Champneys (Turner), and Lancashire Hero.

White-edged.—Taylor's Glory, Smiling Beauty (Heaps), True Briton (Hepworth), Catharina (Summerscales), John Waterson (Cunningham), and Ne Plus Ultra (Smith).

Selfs.—Charles J. Perry (Turner), Formosa (Smith), Topsy (Kaye), Petronella (Headly), Meteor Flag (Lightbody), and Metropolitan (Spalding).

Alpines.—Diadem (Gorton), King of the Belgians, Beatrice, Bronze Queen, Miss Reid, and John Leech, all raised by Mr. Turner.—FLORIST.

REVIEW.

Notes of Observations of Injurious Insects. 1878. West, Newman, & Co.

THIS little compilation, for which we have to thank Mr. E. A. Ormerod of Isleworth, is a step in the right direction, and it is really surprising that there has not been made previously some attempt to gather up the various notes of occurrences of injurious insects that appear in the course of a season, and from these records to draw distinct conclusions which may be helpful in the future. Doubtless one difficulty has been the deficiency of records, economic entomology being too little heeded by scientific observers, while many gardeners have not the time to furnish particulars about insects which may have been specially noticed by them. In addition to the notes that have been sent to Mr. Ormerod, we have here his own observations made in the vicinity of Isleworth, which have their value. Our author commences with the remark that in 1878 there was "an unusual absence in most places of any great amount of damage from even the most common of our injurious insects, excepting in the case of wireworm ravages in the north. A mild and moist winter was followed by luxuriant vegetation in leafage of trees and wild plants, as well as in the crops, and the rapid healthy growth proved of great service in keeping off insect attacks." We are not sure that what is here set forth represents cause and effect, and we shall be curious to perceive what are the results of the season of 1879, for no two winters could be more diverse on the whole than those of 1877-78 and 1878-79. Probably it will be found that many insects perished which pass the winter as imagos, pupæ, or larvæ, and that eggs for the most part were unharmed by the long succession of frosts. As several correspondents of this Journal have written respecting the ravages of Otiorhynchus sulcatus, we may remark that there are many who can sympa-

thise with them. Mr. Ormerod admits the difficulty there is in applying any remedy when the larvæ are not at work, because the plants attacked have mostly soft tissues; but he advises a subsequent dressing of the roots with some such caustic as lime or soot. In more than one place near London the Cabbage gall weevil (Centorhynchus sulcicollis) has done much mischief. The evil is aggravated, Mr. Ormerod thinks, by over-manuring and cropping with Cabbage for years successively. Such an insect as Colces edusa ought hardly to be entered as a garden foe however, nor Asilus crabroniformis, yet returns are wanting concerning some conspicuous pests, as for example, the whole tribe of aphides.

CARNATIONS AND PICOTEES.—No. 3.

As the real work of the season commences this month it will be as well to take the different items in detail. The plants should have a thorough cleaning, removing all dead foliage; be particular in watering, for if the weather proves dry the plants being in such small pots are very liable to suffer from a scarcity of water. If the compost is not already mixed it should be mixed at once, frequently turned, and if wet placed under cover, spreading it out thinly in order to dry as much as possible. All pots should be washed inside and out, also the crocks or drainage before being used. The plants also must have all the air possible. If the weather is mild the lights can be removed altogether from the frames, only replacing them in the event of a return of severe weather. About the middle of the month is the time I commence potting for general bloom, whilst those sorts which are late bloomers or are wanted for early flowers are potted in the beginning of the month and placed either in a cool greenhouse or in frames, giving air at all times when the weather is warm; in fact, it is best to keep the lights propped up always during the daytime, closing them at nights.

It will be necessary before commencing to pot to have the stage in readiness for placing the plants on. There are various kinds of stages. Some are made with a concrete floor with two 3-by-1-inch wooden battens placed parallel for each row of pots to stand on. Some again have a wooden framework built up on which to place the pots; but whatever kind of a stage is made use of it must be so that the water can pass away freely, and also prevent earth worms from entering the pots. With respect to potting, as I have previously described it, I shall only say to those who are in the habit of potting in the old-fashioned pots ("mugs"), which are 12 to 14 inches wide, that only the strongest-growing sorts must be grown in them, planting four to six plants in each, allowing plenty of dainage to carry off superabundant moisture.

The plants after they have been potted can be placed on their blooming stage, some protection being afforded them should cold north-east winds prevail, as has been the case the last three years. I place a wooden framework around my plants with a top piece about 5 feet 6 inches from the ground, to this I tack a number of Russian mats which have previously been stitched together, whilst the low side is nailed to a board which is allowed to rest on the ground, it being nailed to the uprights, which are 4 by 4 inches, but mine is a very windy situation. On the north and east sides of the frame the matting only is affixed, leaving the south and west sides open. Some growers employ iron hoops for placing over the plants, covering them with hexagon garden netting—indeed, anything which will keep off the full force of the cold blast will prevent the plants from being injured. Whilst the north-east winds prevail do not on any account water the plants, as although they may appear to get smaller yet they will be making root, and as soon as the weather changes and a shower of rain falls on them they quickly exhibit its effects.

It will be well now to shell the seed preparatory to sowing it. Those who take it promiscuously can mix it altogether; but to the hybridist who is desirous of raising a few but good sorts it is well to keep a register of the different crosses, keeping the plants under number until they bloom. By this means the grower will soon be able to form an idea as to what sorts to make use of for crossing. At the latter end of this month or early next the seed can be sown in shallow boxes about 5 inches deep, placing at least 1½ inch of crocks on the bottom, covering with a few leaves, or placing a little decayed manure on them; afterwards fill up the boxes to within half an inch of the top with a compost of light turfy loam three parts, and one part of decayed manure and leaf soil, adding a little sand just to keep the compost porous. Press the soil firmly to the edge of the box to prevent it from leaving it, otherwise the plants near the edges are liable to suffer by drought. Press the soil down with a trowel or a piece of board, and on the top sow the seed, not covering it at all, then a slight watering may be given sufficient to moisten the soil. As soon as the water has settled down place a board or piece of slate on the top of each box; or if a number of boxes are sown they can be placed one on the top of another until the seed begins to germinate, when the boxes can be placed separately and be covered with a pane of glass, sprinkling a little fine soil or sand amongst the plants as they commence growing. A slight hotbed is a great assistance to the seedlings. They must be kept out of the full glare of the sun until they throw up the first pair of leaves. Give air at every seasonable opportunity, not allowing the soil to become dry on any account. Look out for slugs, earwigs, &c., which are very destructive amongst young plants. This with me is the greatest objection I have to sowing the seed in the open ground. Look out for green fly, as a single insect is sufficient to cripple a newly-raised plant.

Plants in Beds.—Any that have been loosened by the frost should be pressed firmly back again into their places, and any which may be dead may be renewed, taking care to cover those newly planted with an inverted flower pot at night if the weather proves severe. If dry, and the soil on the top of the beds is caked, stir with a hand fork, breaking the soil fine and placing it firmly around the plants, looking out for slugs, which, if not watched now that there is not much food for them, will behead the plants quickly enough. If the slugs are very troublesome a sprinkling of lime dredged over the bed around the plants—taking care not to dust it on the foliage wet—is a good application, whilst a little fine gas lime sifted very thinly on the beds is better still, keeping it clear of the plants, which must be thoroughly examined once or twice a week for caterpillars. Remove all dead foliage, shortening any leaves which may be partly decayed. Any plants which may be shrivelled as if suffering from drought must be carefully examined, and most probably a wireworm will be found at work—of course for the last time.

If the weather proves very dry, as is sometimes the case during this month, and as the plants have not as yet made many roots, it may be necessary to water them provided the weather is mild, not otherwise. Bear in mind never to water at this period of the year unless the plants flag or shrivel. At the end of the month it will be well to have the blooming rods ready for use, the plants hitherto having had short stakes attached to them, to prevent them being injured by the wind.
—GEORGE RUDD.

SPRING STRAWBERRIES.

OUR first dish of Strawberries was sent to table on the 14th inst., the variety being Black Prince. Runners were layered in 3-inch pots early last July, and the plants were afterwards grown in 6-inch pots in a mixture of loam and cow dung. They were placed in a cold frame in December. The soil in the pots has always been kept as moist as if the plants were in full growth. The first batch of plants was placed in a heated house early in January. During that month and February we had much frost, and the temperature of the house fluctuated accordingly, the heat sometimes being as high as 80° and at others as low as 40°. When in bloom the flowers were brushed lightly over with a feather. Between thirty and forty good fruit formed on each plant, but in some cases about the half of these were removed. Many of the fruit are of large size for Black Prince. No mildew has appeared on the plants; the immunity from the pest to which this variety is subject I attribute to the plants never having been "dried off"—rested. Vicomtesse Héricart de Thury is a favourite Strawberry with many for early forcing, and it possesses great merit. I have seen fruit of it this year grown by Mr. Gilbert of Burghley, which were of splendid form and size and exquisitely flavoured.
A KITCHEN GARDENER.

PRUNING FRUIT TREES.

WHEN and how ought newly transplanted pyramidal and bush trees of Pears, Apples, Plums, &c., to be pruned? This, I think, is a subject of great importance and one that is highly worthy of discussion. During the autumn and winter I transplanted pyramidal and bush trees of Pears, Apples, Plums, &c. On asking advice from gardeners of long standing how these

newly transplanted trees should be pruned, one replied, "Prune a little or none at all the first year;" the other said, "Prune hard as you would an established tree." Now, from two individuals I am offered advice exactly opposite. Under these circumstances I am considerably perplexed, and feel that I cannot do better than appeal to the readers of the Journal for advice; for "in the multitude of councillors there is wisdom."—IGNORAMUS.

EDGING TILES.

THE question has been raised about edging tiles. My experience of eighteen years is, that there is no tile so good as a blue Staffordshire roofing tile for ordinary kitchen garden purposes, either half-rounds or square-topped. It is better not

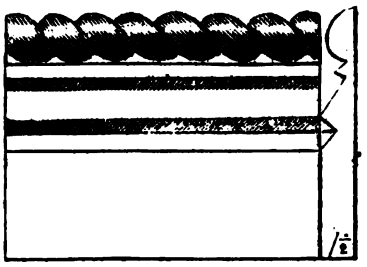


Fig. 28.

to put them in with a straight level top but to alternate them, one tile on edge lengthways, the other upright, which prevents the formality of a straight line, and also does not show the unavoidable twist in the tiles. There are also more ornamental but much more expensive tiles made of good terra cotta, one of which with a rope or cable top and a sloped plinth (fig. 28), has stood very well with me for a border in

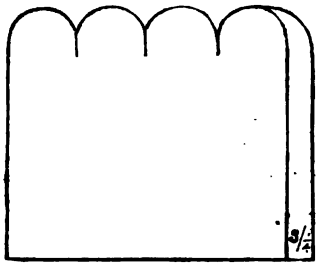
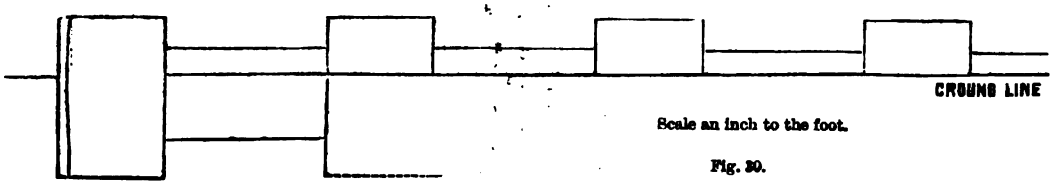


Fig. 29.

front of the house, but I am nearly convinced no paint or other solution will prevent a tile from perishing if not properly burnt. Fig. 29 represents another simple pattern of a terra cotta tile. I have had twenty good terra cotta vases burnt by



Scale an inch to the foot.

Fig. 30.

Mr. Barry of Scarborough, from fire clay, in use on a garden wall and exposed to every kind of weather (as they are never taken in during the winter), for eight or nine years, which have never hitherto shown any signs of perishing by frost even during this last severe weather.

The engraving (fig. 30) shows the Staffordshire tiles when placed as an edging, and the depth the tiles are inserted in the ground. The raised tiles can be had with rounded ends, which impart a different appearance to the edging which some prefer.—C. P. P.

PANCRATIUM MARITIMUM.

THIS plant must be considered practically a stove or greenhouse plant, for it will succeed in either structure. Although described in books as being hardy, I do not think it at all likely to thrive and flower out of doors. If you have the true sort the bulb is rather small, brown, not black, and is slow to produce offsets. Cultivated with pure loam with sand in a rather small pot, it should flower annually during the warmest part of the year. If grown in the ordinary greenhouse, a removal into the stove about midsummer (the old practice), will generally determine the rise of the flower. It is evergreen, but requires very little water in winter—just sufficient applied occasionally if the foliage seems to suffer. When water is given to a resting plant it must not be by small quantities which merely wet the surface, but should completely moisten the ball and be applied at long intervals.

I do not think the "good roasting" insisted upon by writers is of so much consequence as a long and healthy growth of the foliage, induced as soon as possible in the autumn, and finished as soon as possible in the spring, so as to leave time for a long resting period.

Those who possess that invaluable appendage to their bulb garden, a narrow glass frame in front of the stove or greenhouse, may employ it with advantage as a nursery ground for these bulbs, that is as far as growth in size of bulbs is concerned; they do not flower often there, but will soon do so when subsequently taken up and grown in pots. The splendid Nerine Fothergillii will thrive and flower in the above-mentioned frames, and attains a flowering size far more quickly and certainly than the Guernsey Lily, N. sarniensis.—R. TREVOR CLARKE, *Welton Place.*

ADIANTUM FARLEYENSE.

IN reply to Mr. Peach regarding Adiantum farleyense, what I referred to was an exhibit of fronds and not of plants, at either the Floral or Scientific Committee in London. It might be about three years ago. I have looked through papers which I possess, but as I do not always keep them all I cannot find the incident recorded. I do not remember reading that spores were produced, still it looked as if the plant made an effort to that end, even if it was abortive. I have seen many fine specimens of this Fern, but have never known it produce spores. Some years ago I had been told that Niphobolus lingua never produced fertile fronds, but sometime after this was found out to be wrong, as though in some places it rarely does so, its fruiting is not uncommon. The influence of surroundings upon the native Maidenhair (A. Capillus-Veneris) is sometimes seen in a very remarkable degree; when grown in a dark moist place it will produce fronds over a foot long with pinnæ not much less than A. farleyense in size, and in this way it does not fruit nearly so freely as when it only grows a few inches high under greater exposure.—R. M. A.

[We have seen spore cases on the fronds of A. farleyense; they have also, we think, been produced at Kew, but we have not any well authenticated evidence that they produced fertile spores. We have seen plants which were supposed to be from spores of A. farleyense, but they all resembled A. scutum; and as that Fern was grown in the same house spores from it had probably found a suitable medium in the pots in which endeavours were being made to raise plants of A. farleyense.—EDS.]

PRYAL'S GOLDEN CYPRESS.—During a recent visit to the nurseries of A. D. Pryal, on the Temescal Creek, some four miles from Oakland, we observed with much pleasure the original tree of this new variety. Pryal's Golden Cypress is a seedling of marked character, from the well-known C. pyramidalis. The deep yellow blotches run into the branches, and even show on the cones. The compact growth and evenly distributed variegation make this a promising novelty.—(*California Horticulturist.*)

NOTES ON ANEMONES.

ANEMONE PATENS (the Spreading Windflower), is a little-known species, but not difficult of cultivation. The flowers,

which are about the size of those of the common Wood Anemone, are of a pleasing light yellow colour. It grows to about a foot in height, and soon forms good-sized clumps in light rich soil. It flowers during May and June, but not very profusely. There is a variety—A. patens ochroleuca (fig. 31)—which is sometimes ranked as a species, with cream-white flowers somewhat

Fig. 31 —ANEMONE PATENS OCHROLEUCA.

larger than those of the normal species and very attractive. The plant is perfectly hardy, being a native of Siberia, and is seldom seen in cultivation.—R. D. TAYLOR.

NOTES ON VILLA AND SUBURBAN GARDENING.

If the proverbial saying that "a peck of March dust is worth a king's ransom" has not been realised during the present month, yet the weather on the whole has been favourable for bringing up arrears of work, and has been sufficiently dry for sowing seeds in the kitchen garden. Pleasure grounds and shrubberies are now neat; the shrubs have been thinned and pruned to allow the light and air to penetrate around them; the edges of the grass borders have been cut with the edging shears, the borders all pointed over, the grass swept and the mowing machine run over it, which has given a neat and trim finish to the lawn. This being completed, the walks will next occupy our attention. Where the

gravel is worn thin a shallow coating of new gravel will be given; but where there is plenty and it has only become green and mossy, it will be broken up with a fork, the dirty parts raked out, and the surface well rolled again after rains. This timely cleaning of the walks will render the pleasure grounds enjoyable throughout the remainder of the year.

LAWNS.—For renovating lawns that have become bare, patchy, or mossy, there is nothing that will improve them so much as a moderate covering of short manure applied at once, or short manure and road scrapings mixed together now and applied to the lawn next month, then sown with Suckling Clover (Trifolium minus) at the rate of about 12 lbs. to the acre; and for light gravelly soils adding 1½ lb. of Bird's-foot Trefoil (Lotus corniculatus minor), which will freshen the turf considerably. Rake lightly after sowing, which is best done when the soil is moderately dry, when the lumps can be crushed to powder without adhering to the roller. Press of other work at this season of the year too often prevents the roller being used as often as is desirable, especially when we consider that the more a lawn is rolled the more it is consolidated and the thicker and better the turf becomes. Mossy lawns should have a good raking to clear away a portion of the moss before applying the short manure, and under Elms or other large trees where the grass has been destroyed by the drip off the trees it is almost useless attempting to repair it; but if the vacant ground were planted thickly with the common Ivy it would soon grow together and form a fresh green covering. To those who prefer grass the quickest and surest way is to lay down freshly cut turf; this will look well for a time, but eventually it will turn sickly and decay, lasting only for one season. This is also a good time for removing Plantains, Daisies, and other weeds from the grass.

ROSES.—Stake all newly-planted Roses and complete their pruning. In pruning Roses the object is to balance the head by shortening all long and gross shoots, and removing entirely all dead and weakly growths when blooms of large size and fine form may be expected. It frequently happens in the case of newly planted standard Roses that there are only one or two strong growths made from the union or bud. These are best cut down to two, three, or four eyes. Always prune to the eye that points outward: this will in time make an open and well-balanced head. Gather up the prunings and burn them, and by having the beds and borders dug over lightly they will have a neat appearance.

KITCHEN GARDEN.—The main crop of Potatoes should now be planted without delay, especially on light dry soils; and for small gardens those sorts only should be planted which ripen their crops early and which can be lifted in time to plant the ground with the Cabbages, &c., intended for the winter supply. Successional sowings of Peas, Beans, Turnips, and Radishes should be made according to the quantity required, and Brussels Sprouts, Savoy, Cabbage, and winter Kales must be sown in small breadths to secure an early supply for planting out. Where birds are troublesome it will be necessary to protect all small seeds with nets.

CUCUMBERS.—Where Cucumbers have not been already started they may have a bed made up for them with well-prepared horse manure, as advised in former calendars. Cucumber growing is rendered comparatively easy at this period of the year. The warmth arising from the manure will cause the plants to grow rapidly, and the increase of sun heat will render that growth fruitful. As soon as the bed is completed place the frame over it, and place about a bushel or so of good light soil in the centre of each light, in which the Cucumbers should be planted. The variety known as the Telegraph is about the best and hardiest for amateurs. It is very prolific, a strong grower, and the fruit is very sweet and tender. The lights should be covered every evening with mats, and on warm afternoons the inside of the frame should be sprinkled with tepid water.

CONSERVATORIES are now very gay with Camellias, Azaleas, Spiræas, Hyacinths, Lily of the Valley, Cyclamens, Tulips, &c. As the two former go out of bloom they should have all decayed flowers and seed pods removed, the plants being placed if possible in a house where they can have moderate warmth and plenty of moisture in order that they may complete their growths early, which will enable them to bloom correspondingly early another year. The Camellia is the most beautiful winter-flowering shrub in cultivation. Its dark glossy leaves are attractive, while the flowers are perfect in outline, of a smooth globular form, and only wanting in one quality—perfume. They are of many colours and forms—from the spotless white to the brilliant red. The white varieties are much in request for bouquets for ladies' hair and for festive decorations generally. The old Alba plena is still very useful. Fimbriata, Princess Charlotte, La Reine, Montironi, and Ninfa Egeria are amongst the best of the whites; while Mathotiana, Imbricata, Marchioness of Exeter, Madame de Strekaloff, and the Crimson Beallii are excellent coloured varieties.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE drying winds since the thaw have allowed arrears of work being pushed forward, and crops sown that have been delayed by the frost and snow. No time should be lost in finishing the chief sowing of Onions, Parsnips, and Leeks. Carrots for an early crop should also be sown; the Early Horn or Early Nantes are suitable varieties. Sow a succession of Peas of the early varieties, such as William I., First and Best, and Alpha; sowing at the same time later varieties such as Criterion, Dr. Maclean, Champion of England, Standard, &c., which will maintain an unbroken succession. Peas that have been sown in turves, &c., and grown in cool houses or frames should be planted on warm borders, placing sticks to them at the same time, which will afford them protection. Between the rows of Peas a row of Spinach may be grown, also Radishes if the space is greater than is required for Spinach, these crops coming off before the Peas interfere with their growth. Make another sowing of Broad Beans of Monarch Longpod, and Windsor. A moderate sowing of Cauliflower, Brussels Sprouts, and Savoys should be made, if not already done, upon a warm border to succeed those sown under glass; and if Cabbages be wanted in late summer seed should be sown now, Carter's Heartwell being one of the best varieties. Veitch's Autumn Giant Cauliflower is indispensable for late summer and autumn use; make a sowing in a sheltered place. And to have early Broccoli, such as Veitch's Self-protecting Autumn and Snow's Winter, ready for use in good time, sow at once; the plants will form heads in December, and if a portion of the plants are placed in frames or pits where protection can be afforded them in severe weather a supply of heads will be had through the winter. The general planting of early kinds of Potatoes should now be proceeded with; the early and second early dwarf-growing varieties only should be grown in gardens. By having the rows 30 to 36 inches apart we have better returns than with the rows closer. After the Potatoes are earthed Brussels Sprouts, Savoys, &c., are planted between the rows, and do very well with the room thus afforded. Look over and fill any vacancies in plantations of Cabbage and Lettuce, using the hoe freely when the weather is favourable. A sowing of Lettuce should be made in drills 1 foot apart for the smaller kinds and 15 inches for the larger, thinning so as to leave the plants those distances apart. This plan is very much better than transplanting. Early Paris Market, All the Year Round, Sutton's Gem, and Neapolitan are good Cabbage varieties; and of Cos, Brown Sugarloaf, Hick's Hardy White, and Alexandra (a select stock of Paris White), are all suitable.

If not already done a portion of the Horseradish plantation should be taken up by trenching the ground and clearing it of all waste pieces of roots, selecting those fit for use and laying them at the back of a north wall, retaining the long thin clean pieces of 18 inches or more in length for planting. After the ground has been trenched and liberally manured, vegetable refuse being a capital addition, plant the roots 9 inches apart in rows 18 inches asunder, inserting the entire length of the pieces. This useful root is deserving of something better than a waste corner, where it has no chance of making good growth, and inferior roots neither afford the gardener pleasure nor the cook satisfaction. Ground intended for Rhubarb and Seakale should be made ready without delay, so that planting can be effected at the end of this or at the beginning of next month. Prepare ground also for the planting of Globe Artichokes.

Forcing Department.—Shift Capsicums into larger pots, three plants succeeding in 8-inch pots; also shift Tomatoes into pots of the same size to secure strong plants for planting out or for transferring to fruiting pots. Pot rather firmly, employing a compost of two-thirds of turfy loam with a third of thoroughly decomposed manure, mulching the surface with the latter so as to encourage surface-rooting. Place the plants in a light airy position in a temperature from fire heat of 55° to 60°. Smaller plants intended for cool house treatment pot as required, and keep them growing steadily, having them well established in 7 or 8-inch pots by May, when they may be transferred to 12 or 18-inch pots, or if need be planted out against walls. The Tomato disease, like Potato disease, is not nearly so virulent early as late in season, strong plants put out in May having a better chance than those having most of their growth to make after they are planted. Sow Tomatoes now for the general outdoor planting, so as to have the plants strong and well hardened off by the middle or end of May. All plants which are being raised in heat for outdoor planting should be well ventilated on every favourable occasion, so as to prevent their being drawn up weakly. Continue pricking off into boxes Celery when sufficiently advanced; a light position is requisite and moderate ventilation, so as to ensure sturdy yet progressive growth. Cauliflowers, Brussels Sprouts, Lettuce, &c., sown early under glass should be encouraged by gentle waterings, the more forward plants being hardened off preparatory to being planted out.

FRUIT HOUSES.

Figs.—The earliest forced crop of Figs in pots will now be swelling rapidly, and the trees will require to be well attended to with water at the roots. They should be well syringed also twice a day. If the pots are well drained it is scarcely possible to apply water too copiously when the trees are in full growth. The night temperature should be continued at 60° to 65°, with 10° more by day, and from sun heat an advance to 80° or 85°,

affording plenty of ventilation when the weather is favourable, to solidify the foliage. Fig trees planted out make rapid progress, hence the necessity of frequent attention to stopping the shoots at the fifth or sixth leaf. As a well-developed spur gives the best results in the second crop, when a number of buds appear together they should be all removed but one, so as to cause it to be sturdy and fruitful. Train and regulate the terminals as required. Keep the house moist by daily syringing and damping the paths, &c., at closing time. This is a good time to propagate young plants from cuttings. The shoots should be selected from 5 to 6 inches in length; with a heel of last year's wood attached they strike very freely in bottom heat.

Cherry House.—It will now or soon be seen whether the fertilising influence was effectual, as the Cherries will be swelling at the base of the decayed flowers, when syringing should be resumed—once a day at present, and twice when the days are more bright. Fire heat will only be necessary to prevent the temperature from falling below 40°, and a minimum of 50° by day. Ventilate at 50°, closing at the same, regulating the ventilation according to circumstances. If green fly appear fumigate the house, having the foliage dry, and keep a strict look-out for grubs. Stopping will soon require attention. Especially is this the case with Plums if there are any in the house. Pinch out the points of the shoots when they have made 4 to 5 inches of growth, removing entirely those shoots that are not wanted, as overcrowding is prejudicial both to the present and future crops.

Pines.—The rooting of potted suckers will be indicated by the growth of the foliage, but it is well to turn the plants, or at least a portion of them, out of the pots, so as to ascertain the condition of the roots and the soil. The young roots which issue from suckers, or plants subjected to similar treatment, are very tender and susceptible of injury from the effect of too much bottom heat, hence when the roots reach the sides of the pots 85° is ample, above which there is danger. When the bottom heat is excessive the pots should be raised, placing some loose tan under and around them, so as to allow the superabundant heat to pass away without injuring the roots. The plants must not be neglected for water, continuing the treatment as stated in our last calendar. Established plants will now make roots rapidly, therefore have soil in readiness for transferring them to the fruiting pots, it being important that they be grown on without check by being either dry or rootbound. Sound fibrous loam in good-sized lumps is the best material for potting, pressing it firmly round the balls of the plants, watering the plants with tepid water, and plunging them in a bottom heat of 90° to 95° until the roots have possession of the fresh soil, when 85° is more suitable. Fruiting plants and those that are at or near the blooming state should have a night temperature of 65° to 70°, and 75° by day, with 80° to 90° from sun heat, closing at 85°, well damping all available surface in the house at that time. Afford succession plants a bottom heat of about 85°, ventilating at 80°, and closing at 85°, lightly sprinkling the plants overhead occasionally.

Peaches and Nectarines.—In the succession houses attend to the disbudding of the shoots, a shoot being taken from the base of the present year's bearing or last year's young wood, a shoot on a level or beyond the fruit being stopped at the second or third leaf. Upon extensions young shoots must be left at 12 to 15 inches distance, and the shoot from the extremity being trained as a continuation of the primary branch. The main branches should be 12 inches apart. Tying should commence early, as when the shoots are allowed to grow considerably they cannot be brought near to the wood they proceed from without danger of their breaking off. Overcrowding must be carefully guarded against; it is fatal to fine high-coloured fruit and the formation and perfecting of the wood for future crops. Thin the fruit by degrees, leaving those well placed upon the upper side of the trellis until the final thinning before stoning. In no case is it good practice to tax the trees with a superfluity of fruit after it is of the size of marbles. Temperature 60° to 55° at night, 65° by day, increasing to 70° or 75°.

In the later house the trees will have set the blossom or nearly so, in which case syringing will need to be resorted to morning and afternoon, having the foliage and young fruit dry before nightfall; disbudding will need to be persisted in as well as thinning the fruit, removing the smallest first, both being done gradually. Temperature 55° at night, 5° less on cold mornings; 55° to 60° by day, advancing to 65° or 70° from sun. In the house started early in the month the blossoms are expanded or expanding; cease syringing, but damp the floors and border, admitting air freely in mild weather, fertilising the blossoms on bright days, when the pollen disperses upon the slightest touch. Ventilate the latest, or it may be an unheated house (a great mistake), very freely, insuring immunity from frost only.

In late houses nothing conduces so much to a good set as turning on the heat for a short time to advance the temperature to 50°, so as to admit of air being given after the flowers expand; as if there be a prevalence of dull cold weather at that time, the closing of the ventilators for safety produces an atmosphere that converts the pollen into paste and prevents the organs of fructification from attaining full perfection. Water the borders as required with water or liquid manure 5° warmer than the mean temperature of the structure, and see that the outside borders in the earliest houses are well protected with litter, as a chill from snow or a heavy fall of cold rain may give a check that will bring off the fruit, especially when stoning. Fumigate upon the first appearance of aphis, but gently, as an overdose will scorch the foliage and cause the young fruit to drop. The foliage should be dry, but damp the house well during fumigation.

Cucumbers.—Dung-heated beds which have been made up for a few weeks will need good linings. Remove as much of the outside of the beds as can well be spared, and if the heat has not greatly declined it will suffice for the present if one half the bed be lined, deferring the other half until the heat is again on the decrease. Whether the lining is performed by halves or throughout let it be applied to the width of 2 feet. Thin linings are of little use, being soon spent and sooner require renewal. When the heat is up in the lining see that there is no accumulation of rank steam in the frame, especially when the sun is powerful, preventing it by ventilation. A good night covering will be necessary to maintain a temperature of 65° to 70° at night. Admit a little air at 75°, and permit the temperature to increase to 85° or 90°, closing at 80° or 85°, not however so as to cause the temperature afterwards to exceed 90°. Add a little more soil as the roots spread themselves on the surface. Attend to training and pegging down the shoots, being careful not to overcrowd them. Stop the leading growths a foot from the sides of the frame, and the laterals at one or two joints beyond the fruit. In watering do not wet the foliage any more than can be helped. In houses the night temperature may be increased to 70°, watering more freely and increasing the atmospheric moisture. In the daytime 85° to 90° from sun heat should be allowed. Look over the plants at least once a week, and thin out superfluous growths, not, however, removing large quantities of foliage at one time. Plants that have been in bearing all the winter may have the beds renovated by removing with a fork as much of the soil as can be done without injury to the roots, replacing it with rich lumpy compost previously warmed. A sowing may be made to raise plants for growing in frames or pits that have been occupied by early Potatoes, Radishes, &c. In four or five weeks the seedlings are ready for planting.

Melons.—Notwithstanding the cold the early plants have made good growth, and are showing fruit upon the first laterals, that admirable variety Eastnor Castle being remarkably free, and Read's Scarlet-flesh equally so. To ensure the setting of the fruit it is necessary to afford a bottom heat of 80° to 85°, and sufficient moisture in the soil to prevent the foliage from flagging; this will arrest the growth, and in combination with a dry atmosphere—a circulation of warm air passing through the house—will favour the production of pollen. Fertilise the female blossoms every day, and stop the shoots one joint beyond the fruit. When the fruits commence swelling earth up the roots by placing warm soil against the sides of the ridges or mounds. Apply water as required, and avoid a soddened condition of the soil, maintaining a good moisture by sprinkling every available surface morning and evening, and syringing the plants lightly at closing time in bright weather. If a succession of fruit be desired in the same house some of the plants should be deprived of the flowers, presuming them to appear upon the first laterals, and stopping these at the third joint will cause the sub-laterals to show fruit, which will be rather later and finer owing to the increased vigour of the plants. Plants in pits or frames with the shoots trained over the surface of the beds will require treating in a similar manner to Cucumbers, lining the bed and adding soil as the plants advance in growth. Train and regulate the shoots, removing every alternate lateral, and apply water sufficiently to maintain a steady growth. As soon as the plants are ready they should be planted and seedlings be potted off. Seed may be sown to raise plants for planting in pits or frames as they become cleared of early Potatoes, Radishes, &c., about five weeks being required to secure strong plants.

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

BOOKS (*J. H. B. B.*).—The "Garden Manual," free by post from our office if you enclose twenty-one postage stamps with your full address. (*O. G. Roberts*).—"The Bulb Garden" by Mr. D. T. Fish will, we think, suit you. It is published at the *Bazaar* Office, 170, Strand, London. You can obtain it through a bookseller. (*Amateur*).—Our "Garden Manual," post free 1*s.* 9*d.*, you will find very useful, and it contains a list of other books on gardening subjects from which you can make a selection according to the cost you desire to incur.

OUTGOING TENANT (*J. Hope*).—The most safe way would be to postpone the valuation until the seedlings appear; but under the circumstance that he sowed after having notice to quit, we think he could not enforce payment, but we recommend you to settle amicably.

LANDSCAPE GARDENING (*T. C.*).—We do not know of a book more likely to suit you than Kemp's "How to Lay Out a Garden," published by Bradbury & Agnew.

LATE POTATOES (*Admiral*).—You cannot have any late Potatoes of better quality than York Regents and Paterson's Victoria. A heavier cropper and a good variety for escaping the disease is the Scotch Champion, but it is not equal in quality to the varieties above named.

CLEMATIS FORTUNEI (*Mrs. W.*).—This variety is not pure white but a greenish cream colour. The flower you have sent is more green than the flowers usually are, yet we have seen many similarly green. Plants that flower early by being advanced in a warm house are generally more green than those that expand later and under the influence of more light and air. They are also, we think, lighter when the plants are grown in peaty soil than in strong loam. Lucie Lemoine is a better double creamy white than Fortunei, but the best double white variety we have seen is Duchess of Edinburgh, raised by Messrs. George Jackman & Son, Woking.

PAINTING INSIDE OF CONSERVATORY (*W. J. C.*).—You cannot have anything cleaner, better, nor more generally pleasing in appearance than white lead paint; but if the structure is large and you wish to render it ornate you may line the roof faintly with pale blue. Such an addition, however, does not improve the appearance of comparatively small houses.

FAT FOR MANURE (*Amateur*).—We should melt it, sprinkle it over earth and then spread this over the surface before digging.

GROWING STOVE PLANTS (*A Reader*).—Such plants as you require may be grown in your flue-heated pit provided you can maintain a night temperature of 60° during the winter months. If the flue is highly heated flat evaporating trays should be placed on it, or they may be formed with cement. These trays being filled with water will afford the atmospheric moisture that is so requisite for promoting the health of the plants. The temperature of the pit at this season of the year should be 65° at night, with a proportionate rise during the day, increasing the moisture with the increase of temperature and *vice versâ*.

GRAPES NOT KEEPING (*Idem*).—Grapes decay from various causes, such as not being sufficiently ripened on the approach of winter, overcrowding of growth and consequently of foliage, overcropping, under-thinning of the berries, and a close damp atmosphere after the fruit is ripe. Your proposal to start the Vines later so as to ripen the Grapes in October will not answer your expectations. The fruit should be thoroughly ripe in September, and with good management and a suitable house the bunches will hang in a sound state for two months.

PROPAGATING DAHLIAS (*A Boy*).—You cannot strike Dahlia cuttings without heat. As you have no frame you have started your roots into growth too early, and you will experience some difficulty in keeping the growth sturdy until the plants can be planted out with safety. You must now endeavour to arrest the growth by placing the box in a cool and very light place, yet quite safe from frost. Cannot you dig a hole in the ground at the front of a wall having a southern aspect, placing the box in it, fixing boards at the front and ends to rise 6 or 9 inches above the young growths, and cover the plants with glass? If you can do this, making the glass secure against wind and stopping up every crevice in the boards, you may preserve the young growths; but this can only be secured by protecting the glass with straw or other material every night so as to exclude even 1° of frost. When the shoots are 2 or 3 inches long you may divide the roots, securing a good portion of tuber to each shoot, and pot them in a light soil, growing them on in an enlarged structure, such as the one suggested. You will then have fine plants in May. Dahlias raised from cuttings, well grown and managed, produce flowers earlier and finer than do roots that are planted in a dormant state. Under the circumstances in which you are placed you have started your Dahlias into growth a month too soon, yet with great care and good management you may yet succeed in your object of growing fine plants and blooms.

GRUBS AT AURICULA ROOTS (*G. B. C.*).—Mix a little paraffin with the water you give to the roots. About an eighth of an ounce of paraffin to a gallon of water will be sufficient, agitating it violently so that the mixture is effectual. This, we think, will kill the grubs and not injure the plants.

ORANGE TREE UNFRUITFUL (*Roby*).—Your tree may have grown too luxuriantly and requires root-pruning, or it may be much shaded by Vines, and hence the absence of flowers. Again, it has perhaps never been grafted, and seedling trees are often long in arriving at a bearing state, and even then the fruit is frequently useless. Your tree may be grafted the same as an Apple tree, choosing a time for the operation when the Vines are in growth, and when the house is consequently kept moist and warm.

DRIED VEGETABLES (*J. T. A.*).—We are unable to give you the information you require. Mr. Alkemade's address is stated in the note to which you refer.

SEEDLING LILIUMS (*R. C. D.*).—Assuming that the seeds were sown thinly as they ought to have been, the plants may remain in the seed pan during the summer. At present they should be placed close to the glass in a temperature of 45° to 50°, and as the weather becomes warmer the pan may be placed in a frame or under a handlight, these during the heat of summer being placed on the north side of a wall. The plants will form bulbs by the autumn, and they may then, or immediately signs of growth are apparent in the spring, be potted singly and be shifted into larger pots as required, and grown on until they flower. Care must be exercised in watering the seedlings, applying water only when the soil approaches dryness, and then in sufficient quantity to moisten every particle of soil in the pan.

AUTUMN RASPBERRIES (——).—The October Red is the variety to which you allude. When the plants are established the canes should be cut down close to the ground, and stronger growths will issue, which, the ground being rich and moist, will produce abundance of useful fruit from August onwards. Belle de Fontenay is also a very fine autumn-bearing Raspberry. The canes should not be cut down the first year they are planted but should be left to encourage root-action, afterwards cutting them down annually and thinning out the succeeding growths in order that those remaining grow strongly and bear fine fruit. You will find more detailed cultural notes on page 446, vol. xxxv.

TABERNÆMONTANA CORONARIA (*T. E. L.*).—This plant requires the same treatment as Gardenias. Cuttings inserted in sand and covered with a bellglass strike readily in brisk heat. The plants grow freely in a compost of turfy loam, peat, and sand. They require a warm stove and a moist atmosphere. We do not know T. camassa, but T. cymosa is a stove evergreen shrub, a native of Carthagena. T. coronaria and the double variety are most generally cultivated, and plants may be obtained from any of the principal London nurserymen.

GRANULATED BONES (*F. L.*).—Granulated bones are better than bone dust for lawns and pastures, because there is generally sufficient dust among them to impart the necessary fertility at once, while the granules by their slower and more gradual decay form a source of fertility for another season. The fertiliser to which you allude is useful and speedy in its action.

COAL ASHES (*Idem*).—Coal ashes are not a suitable dressing for lawns; apply them to your kitchen garden with manure before digging. They are very useful for scattering along drills and furrows before sowing seed in a wet season, preserving the seed from decay, and inducing speedy vegetation.

INARCHING APPLES (*Idem*).—The best time for this operation is in April when the sap is flowing freely. The Grape Vine shoots should spring from the four eyes nearest the ground.

PARAFFIN STOVE (*Alpha*).—The stoves referred to are made of various sizes, but we should prefer two rather small to one large stove for heating your house, or rather for excluding frost from it. If you require a forcing temperature you should employ a small hot-water apparatus. The stoves answer for preventing the temperature of a house falling below 32°, but we do not consider them suitable for maintaining a temperature suitable for the culture of plants of a tropical nature.

LIME TREE INJURED (*An Old Subscriber*).—Plane the wound smooth and trim the edges of the bark as you propose. We consider the soil and cow dung superior to either paint or tar—the latter is injurious. Employ the plaster that we recommended.

TEMPERATURE FOR EARLY VINERY (*Frederick H.*).—Not only is 80° too high at seven to half past nine o'clock at night, but also at any time by artificial means. At the time you name 70° is quite high enough; and with the fires properly banked the temperature will fall little during the night, but it ought to fall to 65° or even 60° in cold weather. During the day 70° to 75° is sufficiently high from fire heat, admitting a little air at 75°, and increasing it with the temperature to 85°, closing at 80°, or even 85° if it is not likely to be exceeded afterwards.

HEATING GREENHOUSE (*Cambridge House*).—We should heat both compartments with hot water, having more piping in the smaller one than the other—viz., four rows of 4-inch pipes along the front and across one end, a flow and return pipe in the other compartment will be sufficient to exclude frost. The flue from the boiler will not be sufficient for the larger compartment in severe weather; and to have a separate flue for it will necessitate two fires, and entail nearly double the expense in fuel. A saddle boiler of 2 feet 6 inches length will do all that is required. Valves will be necessary upon the flow and return pipes of the cooler compartment so as to shut off the heat when not required.

ANTS INFESTING GREENHOUSE (*J. E. O.*).—These industrious creatures will do the Vines no good and may do them harm, especially during the flowering period, and should therefore be destroyed without delay. Place some treacle or honey in shallow jars, and stand them so that one side touches the stems of the Vines, a little of the treacle or honey being smeared on the edge and inside the jar, or they may be poisoned by mixing honey or treacle with arsenic.

LILY OF THE VALLEY (*St. Hilary*).—We presume the plants in the garden flower freely; if so, take up clumps of about 6 inches diameter, where the crowns are plump and rounded. These should be placed in pots a little larger than the ball, sufficient soil being used to close the space between the roots and the sides of the pots. They may be placed in the cool house, and subsequently introduced to the warmer house about six weeks before wanted to flower, supplying them with water as required.

GERANIUM LEAVES BROWNED (*W. B. W.*).—We are unable to account for the leaves becoming brown, though the steam from the air pipe would if the heat were great have an injurious tendency; but is more likely to have arisen from the effects of the bright sun succeeding a prolonged period of dull weather.

GLOBE ARTICHOKES (*A Lady*).—Your Artichokes have not been sufficiently protected. They will grow as the weather becomes warmer. You can do nothing to aid them beyond forking in some manure about the roots, and affording the crowns a little shelter by covering them lightly with long stable litter or evergreen branches.

ANALYSIS OF SOIL (*E.*).—Write to Dr. Voelcker, Salisbury Square, London.

NAMES OF FRUITS (*Hon. S. W. Lawley*).—1, Pennington's Seedling; 3, Pitmaston Golden Pippin; 4, Probably Small's Admirable; 5, Mannington's Pearmain; 6, Beauty of Kent; 8, Wyken Pippin; 9, 10, and 13, Chaumontel. (*J. D. W.*).—Winter Majetin.

NAMES OF PLANTS (*T. L. S.*).—The rose-coloured Camellia is Countess of Ellesmere, the white one Contessa Mastiani. Your variegated-foliaged plant is Agapanthus umbellatus variegatus. (*A. C.*).—It is an Eupatorium, probably E. gracile, but the spray is too small for us to determine the species. (*H. S.*).—We do not undertake the naming of florists' varieties; and further, the Azaleas were too much crushed for anyone to identify them. (*E. D. Clent*).—Clianthus Dampieri (Glory Pea). There is a drawing and description of it in New Series, i., 160, of our Journal. (*Sandgate*).—The white flower had shed all its petals: the red one resembles Souvenir d'Emile Dufresne, and the striped one Caryophylloides. (*J. C.*).—The Begonia is sold under the name of Sambo. The Fern is Asplenium decussatum. (*Young Gardener*).—The yellow-flowered shrub is Candollea calycina. It is a native of New Holland, and requires greenhouse treatment. The variegated shrub is Duranta Baumgardii. It requires stove treatment. (*Gardener*).—Specimens insufficient. Send flowering sprays.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

MANAGEMENT OF A BREEDING FLOCK OF LONG-WOOLLED EWES.

WE have previously described in vol. xxxiv., page 454, the best method of managing a flock of long-woolled sheep, with especial

reference to selling the lambs fat, and also in vol. xxxv., page 454, whilst treating of sheep for the home farm. We now propose to allude principally to the breeding flocks of long-woolled sheep of the leading sorts, for there are varieties of this breed reared in various districts of the United Kingdom. In many respects the same management for one sort or breed may be equally good for others. It is notorious that the soil and climate of different districts exert a powerful influence in altering the management of flocks, although they may be of the long-woolled type or breed. The chief circumstances which tend much, or more than anything else, to vary the management refer to the state of the farm or land whereon the ewes are kept, and this we take as a sufficient reason for dividing our subject into two separate parts—first, the management upon farms consisting of pasture with some arable land, and secondly upon farms comprising grass land only.

We have a variety of breeds to choose from—Leicesters for quality, Lincolns for weight of wool, and Cotswolds for size and weight of carcase; and it is a well-established fact that every other kind of long-woolled sheep may be improved by crossing with rams selected from either of the three above-named breeds if matched with judgment, as each will powerfully impress their offspring with respective characteristics. If it is proposed to keep a breeding flock of any particular breed, it is essential that strict inquiry should be made before selecting both ewes and rams as to tradition and pedigree of the stock, because like begets like in sheep as well as in all other animals. We see no reason to be afraid of breeding in-and-in as it is termed, provided that a judicious selection is made of the rams, and a careful cutting of the ewes takes place. But if we meet with a breed which has been carefully propagated as Bakewell did with the Leicesters, this or any tribe of stock may be kept perfect by breeding in-and-in, provided that the blood is distributed upon different soils, so as to enable the owner again to select from his original and established type, and thus to strengthen and maintain the constitution of the animals from deterioration and degeneracy. We can give a particular instance in the case of the late Mr. Valentine Barford, of Foscote, whom we knew, of breeding in-and-in. He kept the Leicester stock entire without taking any stock for crossing, and for fifty years preserved the Leicesters pure as taken from the stock of Bakewell. In his hands they were distinguished by great symmetry; and although he never went beyond his own flock for his rams, neither the health or fecundity of the ewes were impaired, the only drawback being that the ewes were small compared with those bred by others who had been crossing in various ways. Mr. Barford also prided himself on his sheep being fed on natural food entirely, believing as he did that excessive feeding weakened constitution, and they were healthy and pure in consequence.

In considering the first part of our subject, that of keeping a breeding flock upon farms consisting of arable land as well as pasture, we will refer to the management of the arable land with the view of furnishing food supplementary to the pastures both in summer and winter. We are thus again obliged to make some distinction between those farms consisting of nearly all arable of a soil suitable for carrying sheep both in winter and summer, and being of a dry friable nature like much of the land upon the Cotswold Hills, where the Cotswold breed of sheep and their crosses predominate. We will also make a few remarks upon the use of the heavy strong soils in various counties, more particularly the midland counties, for maintaining the ewes in part during the early spring and summer months, and thus supplement the food furnished by the grass land.

The rotation required to furnish food for a breeding flock all the year round is very important, and refers to the first part of our subject. Keeping in view the object of feeding large flocks of long-woolled sheep, and at the same time producing profitable sale crops, cereals and pulse, we recommend what we term an eight or double-four course rotation—viz., 1, A fallow for Swedes fed off by sheep, and part mangold to be stored; 2, barley, early white oats, or dreg for home consumption; 3, clover, one-half being red clover and suckling, the other half Dutch and trefoil, and Pacey's perennial rye grass, to be alternated when the course comes round again; 4, wheat; 5, rye, trifolium, and vetches followed by mangold, Swedes, and turnips; 6, barley or part wheat; 7, hop clover and Italian rye grass for early feeding by sheep, followed by rape, mustard, or vetches; 8, wheat or oats. It is, however, a good plan upon some of the lightest land upon the "stone brash," to have a portion of saintfoin for three years, or otherwise in the fourth rotation to seed down for three years with a mixture of grass seeds, including suckling and Dutch clover, with Timothy and perennial rye grass, and come up for wheat or oats in the eighth year, one-half to be sown out of lea, the other half once ploughed and sown with turnips to be fed off before wheat. A large proportion of such farms, not only in Gloucestershire but in other counties where the stone brash is found, furnishes excellent water meadows which are often irrigated irrespective of flooding rains, by the springs arising from the calcareous strata like those of the Cotswolds. These are admirably adapted for the purpose, and we may here take as an illustration the water meadows of South Cerney, which are accounted some of the best to be found in England. Now if we only carefully look to the produce of cattle and sheep food as well as corn, which will be the result of the above-named mode of management, it seems to leave nothing to be desired in the provision for a breeding flock all through the year. Where the farms consist of something like equal quantities of pasture and strong land arable, we must also look chiefly to make the arable supplement the pastures both in the summer and particularly in early spring. For this purpose we recommend the rotation to be —1, fallow crops, any lumps of couch to be forked-out, part seeded to rye and spring fed by sheep, part trifolium the same, vetches with oats in admixture to be fed on the land also, the rye and trifolium to be followed by mangold and Swedes, and cabbage to be pulled off for use on the pastures in winter and spring and during the lambing time; 2, barley, or oats, or part wheat, seeded to clover; 3, clover in part with part winter vetches, to be alternated in the next course; 4, wheat; 5, green fodder crops, such as cabbage, mangold, rye, trifolium, vetches, &c., those most required by circumstances to prevail; 6, wheat and part oats. Now here we have a rotation capable of expansion and alteration, which may be made to suit the varying proportions of arable and pasture, and also furnishing abundance of vegetable food to aid the pastures in maintaining the largest numbers of a breeding flock per acre, which can be kept from the produce of the farm only without artificial aid, although we are very far from advising the managers of home farms not to use cake or corn for feeding stock under certain conditions and circumstances. It will be found that on the farms referred to, the Cotswold sheep are usually kept on the former, and either the Leicesters or Lincolns on the latter.

After having decided upon the sort of sheep to be kept, it must be understood that it is not always that the different ages of ewes required for making up a breeding flock can be obtained exactly at the time when wanted. Two-teeth ewes can nearly always be had at the fairs, and also full-mouthed or off-going ewes. The latter can therefore be kept and bred from for two years, which will make up a full stock in the second year, and the method of maintaining a flock of the required ages was fully described and explained at pages 58 and 71 of our present volume, under the heading of "Management of a Flock of Down Ewes." It therefore remains now, after having shown the method of obtaining a flock and the rotations of cropping the land for their provision and maintenance, to refer to their usage and mode of feeding, commencing with the months of July and August.

One of the leading points to be observed in the feeding of sheep is, that whenever they are fed on the pastures at daytime, they should receive food the produce of the arable, and lie upon the tillage land at night time. The second growth of clover, the summer vetches, the saintfoin, or the old lea ground will afford them good and wholesome food, and healthy lying through the whole autumn, until the roots are sufficiently forward to begin feeding off, and until about September on the high and dry ground, and until about October upon the strong land farms. At this time the tups should be turned with the ewes, about two tups to the hundred ewes will be enough. The ewes will then be generally in good condition; and there is no occasion for cake feeding, because it is not requisite to force the ewes on for the production of earlier lambs than are required to feed late Swedes, the early grass, rye, &c.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Instead of the spring seed time and the horse labour consequent thereon being spread over part of February, the whole of March and April, it will now be required to be carried out within much less time, only part of March and the month of April being available if the weather should be ever so favourable. Beans and peas are the first seeds to be sown, barley following as soon after as the land can be made to work light and freely. The sorts of barley for light dry soils we recommend are the Golden Melon, Australian, and Chevalier, but for stronger or mixed soils we think American Red-awned the best, and the best way to insure a good sample is to drill wide, this will stiffen the straw and produce a better yield where the land is equal to a heavy crop of straw. Two bushels of seed drilled 12 inches apart in the rows are likely to answer best, and we have found it succeed remarkably well on the lightest chalk and gravel soils. The sowing of oats and dreg will soon follow, and where the Lent corn is to be seeded with clovers, &c., it is well to grow broad clover mixed with suckling, to be alternated on the next occasion by Dutch and suckling to make into hay for sheep. The advantage of sowing any grass seeds with the clovers is very doubtful where the crop is to be cut for hay, as the rye grasses very often starve the clover. It is none too soon to sow the clover seeds, and in our opinion they should always be sown simultaneously with the Lent corn, as we have never known frost hurt the young plants. They are, however, oftener carried off by the little white slugs. Whenever the horses are hindered by changeable weather there will be plenty of work on the clovers and pastures by rolling, and in some cases, too, the fallow for roots may receive the second ploughing, although the land may be too heavy or wet for seeding the Lent corn, particularly on light dry soils.

Hand Labour.—Timber-cutting will soon be going on, and where larch and fir trees of any variety are being cut for home use take care to have the bark stripped off, as the wood will last much longer; it is just the same with large alder or ash poles, which often grow on the margin of brooks. These should always have the bark removed when it is intended to use them without being sawn, because when the bark is left on the poles it breeds small worms or insects, which bore holes in the surface, and the wood soon decays. The first drying winds that occur will be the best time and chance to observe in land that requires draining where to place the drains, as the spots not dried by the weather surely indicate the patches which are too wet, or where drains are stopped. This matter should be looked after immediately by doing the necessary work or marking it out for the future. We will suppose that the labour attending threshing, &c., has been done before this, for it is purely a labour question, and when done in the winter and early spring it does not delay or displace the work of the home farm so important from this time forward. When the rains drive the labourers home to the farm for shelter, be sure and take care that they have plenty of work set out for them under cover, breaking guano ready for use, screening ashes, screening chalk for drilling with root crops, turnips especially on mixed soils; this should be done when the chalk has been stored in readiness under some shed or outhouse. The late severe weather has in many instances seriously injured the mangolds in heaps and stores where not sufficiently covered and protected, and we well recollect the severe frost in October, 1859, which ruined the mangold in most instances whether in the land or in store, as people were taken unawares, and by the early and extreme severity of the frost. The use of frosted mangold was a matter of inquiry at that time amongst the correspondents of the *Agricultural Gazette*, and it was found at that time that various farmers had used the partially rotten roots with advantage for store cattle, but also in feeding pregnant ewes without injury by a judicious allowance of dry and counteracting food such as hay and straw chaff, &c. We therefore recommend that mangold heaps on the home farm should be examined, and in case any roots are partially injured that the heaps should be turned over carefully, in which work both men and women may assist; the damaged bulbs taken out and the heaps made up again as before, and re-thatched if they are required to be held on for feeding in the summer months. The advantage will be in preventing the extension of rottenness to the main body of the heaps, and also afford food for present use although partially damaged. The roots may be given to pigs, such as breeding sows, but not young stores, because we object at all times to give mangolds to young pigs under four months old. The fatting bullocks too may have them cut and mixed with bean or barleymeal or decorticated cotton cake, and also the dairy cows whilst in full milk, receiving at the same time a liberal allowance of hay and straw chaff. In case the heaps are not turned over and the injured bulbs are allowed to remain, it will spread as the season advances and affect the whole of the roots, for when the white mould or mildew is formed it spreads and reproduces like all fungoid creations. In fact we always in the month of May turn over and reform our heaps of mangold if required for use at an advanced period of the summer. As much injury has been done to both turnips and Swedes in the open field if hay had not been abundant it would be difficult to keep the breeding flocks in condition, especially where the water meadows are fed in the spring, as the grass in most cases is ten days later than usual. The women will now be useful in field work, as it is so much in arrear, by picking, couching, weeding, &c., and if driven indoors by wet weather they may now be employed in hand-rubbing and preparing carrot seed in readiness for the drill.

TABLE POULTRY.

We are apt in many things to forget the end we have in view while vigorously pushing forward the means of obtaining it. This is often the case in poultry fancying. Shows have been of the greatest use in encouraging a taste for pure-bred poultry and enabling fanciers to compare their specimens in friendly rivalry. Without such a stimulus the great improvement which we see in the size and beauty of many breeds would never have taken place; people would not be sufficiently enthusiastic to look forwards to the far-off end of the general improvement of poultry as a marketable commodity had they not meanwhile some present diversion from and interest in the pursuit of breeding. There is some danger, however, lest a too great scrupulosity about fancy points, or a too great attention given to the production of size to the neglect of strength and symmetry, should make us forget the first desirable qualities of good table poultry. We have heard of late many complaints to the effect that though so much trouble is bestowed on fancy poultry, good chickens for the table are no better and no cheaper than they used to be. We do not believe in the truth of this grievance; still it may not be out of place for us to enumerate the special qualities which make poultry good for the table, and give some hints for their production. The chief points to be considered are delicacy of flesh, its production on the best parts, and early growth. These desiderata all depend upon the breed, and too many of them much also on the method of feeding. We will therefore give our ideas separately about the choice of a breed and the feeding of table birds.

The selection of the breed must depend to some extent upon climate and circumstances, but speaking generally Dorkings and Game fowls are the best English table poultry. In a mild climate we would certainly try La Flèche; the delicious birds of the Parisian markets are, we believe, generally of this race. They have been found unsuited to the English climate, but not long ago we were much struck with their excellence in the Isle of Jersey, and cannot but think that since they thrive well in Normandy and Brittany they might succeed in our warmer climates. Where large-size fowls are required early in the year we must resort to crosses, first crosses we mean, for further cross-breeding is not to be encouraged. The first alliance of two pure breeds gives in many instances great strength and very early maturity. We would breed from Dorkings on one side and either Game or Houdans on the other. All fowls connected with the Dorkings are full-breasted, and so have the maximum of flesh where it is most tender. Asiatics on the other hand, which are most valuable for crossing where the production of eggs is the chief object, carry the greatest amount of flesh on the leg. For this reason and for their great size Dorkings are pre-eminently the poulterer's fowl, and where the soil is not heavy and wet we should ourselves keep them pure; they are said not to thrive, however, in a very damp or cold situation, and in such we would strengthen them by the crosses we have mentioned. Probably no more delicious fowl can be produced than a cross-bred Game-Dorking. There is a prejudice against blue legs, and so the fastidious should select white-legged Game fowls, for such are to be found. We cannot, however, see why a blue leg in a fowl should be objected to any more than in a Pheasant, and should only be careful to select plump birds of the old-fashioned type of Game of any pure variety rather than birds of show strains with Malay blood. As to food, we should make no difference between chickens for exhibition and table purposes. We have often written about the *régime* for the former. Oatmeal or ground oats should from their earliest days be a staple article of diet; we abhor exciting stimulants, meat or greaves, they almost invariably cause leg-weakness and bone-disease. The chickens fed on them become over-heavy, and instead of running about they squat on the ground; the flesh of the leg becomes tainted, and is even more unpleasant when cooked than woolly mutton. Everyone has at times met with chickens the wings and breasts of which are tolerable, but the legs are absolutely uneatable. The bones of such birds are dark and diseased, and this we attribute to improper food. Every part of a bird fed chiefly on oatmeal, which should be mixed if possible with milk, will be delicate. Rice, too, improves the flesh, and in hot weather is a good addition to diet, but has not enough warmth-giving matter for winter.

We are often asked whether table poultry should be fatted artificially or allowed to run at large. Our own have always done the latter, and their size and the quality of their flesh have astonished many who have seen and eaten them. We are content with such birds, but where absolutely fat chickens are required careful fatting may be resorted to. We are not prejudiced against it provided it is managed on a clean method. The old-fashioned coops in which a score or so of birds were crammed are an abomination. We have seen them with fixed wooden troughs in front into which food and milk were continually added to that already sour, and where the strong birds continually tormented the weak. Single pens for each bird are far preferable; the French are great adepts in artificial fattening, and we hope ere long to have an opportunity of seeing their system in one or two of the great establishments. We make a point of never writing upon what we do not know from personal experience, and so shall content ourselves for the present with giving the above few hints for feeding in the natural manner.—C.

VARIETIES.

Referring to oilcake in cattle-feeding *The Tribune* states that the flax-seed cake made in America finds its market mainly in England. No less than 201,299 tons were received in Great Britain during 1878, and a large quantity besides is manufactured there from imported seed. The sum of £1,625,813 was paid for it. The quantity exported from America during the last fiscal year was 342,446,489 lbs., valued at 5,095,163 dollars.

—— Darwin's "Animals and Plants Under Domestication" contains the following relative to the history of the fowl:—"Rütimeyer found no remains of the fowl in the ancient Swiss lake dwellings. It is not mentioned in the Old Testament, nor is it figured on the ancient Egyptian monuments. It is not referred to by Homer or Hesiod about 900 B.C.; but is mentioned by Theognis and Aristophanes between 400 and 500 B.C. It is figured on some of the Babylonian cylinders, of which Mr. Layard sent me an impression, between the sixth and seventh centuries B.C.; and on the Harpy Tomb in Lycia, about 600 B.C., so that we may feel pretty confident that the fowl reached Europe

somewhere near the sixth century B.C. It had travelled still farther westward by the time of the Christian era, for it was found in Britain by Julius Cæsar. In India it must have been domesticated when the Institutes of Menu were written—that is, according to Sir W. Jones, 1200 B.C.; but, according to the later authority of Mr. H. Wilson, only 800 B.C., for the domestic fowl is forbidden, whilst the wild is permitted to be eaten. If, as before remarked, we may trust the old Chinese Encyclopædia, the fowl must have been domesticated several centuries earlier, as it is said to have been introduced from the west into China 1400 B.C.

—— A SURREY correspondent having noticed inquiries regarding the employment of honey, sends the following recipes which he has extracted from an American paper:—

Honey Apple Cake.—Soak two cups of dried apples overnight; in the morning chop them fine and simmer for two hours in two cups of extracted honey. Cool, and mix with it a cup of sugar, half a cup of milk, half a cup of melted butter, nutmeg, cloves and cinnamon (a teaspoonful each), two eggs beaten light, and three cups of flour with three teaspoons of baking powder sifted through it. Line the pan with buttered paper, and bake in a moderate oven until well done.

Honey Sponge Cake.—Mix four cups of sifted flour with two cups of honey that has been stirred briskly with the yolks of six eggs; add the juice of a lemon, the whites of six eggs beaten to a stiff froth, and a teaspoon of carbonate of soda dissolved in a tablespoonful of boiling water. Bake in a moderate oven.

—— CREAM CHEESE.—Tie up in a thin cloth half a pint of thick sour cream. Hang it up for twelve hours, or till all the watery fluid has dropped away. Take it down, open the cloth, press the cheese flat, take off the cloth, cover the cheese with a vine leaf or some nasturtium leaves; young nettle leaves are better than any. In twelve hours more the cheese is fit for use, and will be found equal to any of more elaborate make. Any size according to requirement can, of course, be made in the above manner.—A. M. B.

—— THE American potato crop for 1878 is 124,000,000 bushels as against 1877, which was 177,000,000 bushels, a falling-off of 53,000,000 bushels. The hay crop is 20 per cent. less than that of 1877.

BRITISH BEE-KEEPERS' ASSOCIATION.

MAY I through your columns suggest to the secretaries of county bee-keepers' associations that, in order to avoid clashing with one another, they should fix the dates of their county shows for the present year as early as possible if they wish to take advantage of the offer made to them on the 12th of February at the general meeting of the British Bee-keepers' Association? To county associations affiliated to the central or British Association by the payment of not less than one guinea per annum, the latter, in addition to a silver and a bronze medal and a certificate, these prizes being for the encouragement of the production of honey in its most saleable form (the silver medal at least being appropriated for honey in the comb), for competition at the county show, offers the use of its bee tent, specially constructed for exhibitions, without any other stipulation than that the servant and manipulator of the British Bee Association shall accompany the tent and see to its erection and removal, the county association paying him at the rate of half a guinea per day and also defraying his travelling expenses. The travelling expenses of the tent must also be defrayed by the county association, which must also make good any damage sustained by the tent whilst in their possession. Secretaries of local bee-keepers' associations or of floral and cottage garden societies can arrange with myself for the attendance of the bee tent at their exhibitions at such times as it is not required by the central or county associations; but in these cases the Committee of the British Bee-keepers' Association find it necessary to take upon itself all expenses whatever, and to divide the profits with the local society, and the Association must be allowed to charge each visitor an admission fee not exceeding 6*d.*, but varying according to the circumstances of the locality. At such shows a bar-and-frame hive is offered as a prize to the cottager who shall produce the best and strongest skep of bees, not being a swarm of the present year, on condition that there shall not be less than four competitors, and that these shall allow their bees to be manipulated. The manipulator will transfer the bees and combs of the winner into the prize hive without making any charge.

I may add that Mr. S. J. Baldwin is prepared to visit the apiaries of members of the British Bee-keepers' Association, and also of the associations affiliated with it, for the small charge of 7*s.* 6*d.* per day exclusive of his travelling expenses; and any two members residing near each other whose apiaries can be inspected in one day can divide his services between them. Members of the British Bee-keepers' Association who wish to dispose of honey are invited to communicate with Mr. S. J. Baldwin, Gipsy Cottage, South Vale, Upper Norwood, S.E., sending him samples of their honey, carriage paid, in jars or sectional supers not exceeding 3 lbs. in weight, and stating the quantity which they have for sale in these forms.—HERBERT R. PEEL, *Hon. Sec., Abbot's Hill, Hemel Hempstead.*

MODERN BEE MANAGEMENT.—No. 7.

SPRING TREATMENT.

THERE is considerable difficulty in laying down fixed rules for the treatment of stocks in spring. Much depends on the condition in which they are wintered. Should they have been warmly protected and have plenty of food there is nothing to be gained by meddling with them until at least spring flowers are abundant. Much depends also on the object in view. Some bee-keepers may desire speedy and great increase of stocks, some may purpose to work for honey results alone, while perhaps most desire both swarms and honey. The difficulty is increased by the fact that the time of the chief honey harvest varies with every new district. In urban localities the main crop will generally be from fruit blossoms, in agricultural districts from clover, and in the highlands from heather.

A few general directions may, however, be given to all. The first fine day in spring all stocks should be thoroughly overhauled. Attention should be given to the following points: The presence or absence of a queen; whether brood-rearing has commenced; the condition of the hive and floorboard; the amount of food remaining, and the state of the outer combs whether dry or mouldy. If necessary the stocks should be transferred into clean hives. All should have their empty combs, so far as not covered by the bees, removed and stored in a dry place. Stocks having abundance of food should have some of their combs transferred to those whose stores are nearly exhausted. Each stock should then be crowded by division boards on to only as many combs as the bees can cover; the entrance should be contracted, and all tucked up snugly again as if a return of winter were expected. Where many stocks are kept the state and requirements of each should be at once noted down on a register.

This opens up a wide field for advice. To be ready for all emergencies one should know how to transfer, to introduce a queen where required, to unite stocks if one be weak or queenless, and perhaps to cure foul brood. We cannot, however, enter on these points at present. We shall suppose that all our stocks are in fair thriving condition, and proceed to consider how we can best assist them in securing the object in view.

If early swarms or supers from fruit blossoms are desired stimulative feeding should commence as soon as early flowers begin to attract the bees. The feeding bottle referred to in a former paper should be brought into use. The stage should be so regulated that a pound of thin sugar syrup should last for three or four days. After a few weeks the same supply should be allowed every second day. At the same time, should the weather be fine, artificial pollen should be offered in the open air. I use for this purpose an old skep half filled with shavings; over these a few handfuls of pea flour are sprinkled. In Scotland we purchase it under the name of Glasgow brose meal for about 2*d* per pound. I have also used rye meal with success. My bees have been busy as millers on the pea flour every fine day since the 1st inst., and need no teaching in a season like this, when spring flowers have not yet made their appearance. Should the weather continue cold the candy cake described on page 186 should be substituted for the syrup and meal. Should it be found at any time that the food thus supplied is being stored and sealed to any great extent the feeder should be removed, and a small portion of the comb unsealed with the honey knife every day or two. This will have the same effect as the bottle, and give room for egg-laying.

Under this treatment the bees will rapidly increase in numbers and will require more room. The spare combs formerly removed should be replaced, one every ten days or so being inserted right in the middle of the brood nest. When these are exhausted sheets of comb foundation may be given instead. With good fertile queens this treatment will soon bring the stock to swarming point, and, unless thwarted by the adverse weather so common in May, a fair harvest of honey may then be obtained from the gooseberry, apple, and other fruit blossoms.

Should the harvest from clover or heather be chiefly in view we would strongly recommend that stimulative feeding as described be delayed till about the 1st of April. Unless increase is desired it is no profit to have the hive crowded with bees for weeks before there is honey in the fields. Frequently such stocks would perish from over-population unless fed at considerable expense. Then, also, a larger proportion of the bees are getting old (if six weeks can be called an old age). The queen also is by this time frequently overtaxed, and fails to keep the combs filled with brood when it is most desirable. We want to have our stocks just coming to the swarming point and our queens just at their best when clover blooms, and then we are sure of supers.

Being situated in a district where all the above sources of honey are abundant my intention is to stimulate early, extract, and swarm to a limited extent up to the second week of June, equalise stocks so that all may be fit for supering when clover

blooms, rear young queens or import Ligurians to take the place of those becoming aged, so that every hive may have a fresh young queen, and allow no more swarming till clover fails. A few more artificial swarms may then be made if there is a prospect of all stocks being still strong when the heather blooms in August. It is mere waste of time and means to allow unlimited swarming during the honey harvest, or to have our attention taken up in nursing handfuls of bees. Strong stocks will require least attention, unless the pleasant task of piling on empty and removing full supers be regarded as a toil. Mr. Pettigrew deserves the thanks of every bee-keeper for his persistent advocacy of large hives and strong stocks. These are the alpha and omega of success.—WILLIAM RAITT, *Beecroft, Blairgowrie.*

PEA FLOUR FOR POLLEN.

WHY is it that bees on the finish of early spring days after a few hours' work at pollen gathering, while the sun is growing hotter and the air more and more balmy, cease from their labours so early in the morning, and appear listless and indolent the rest of the day? Why is it, again, that the same sort of thing occurs in the warmest days of October in respect of honey gathering, when the ivy blossom is most abundant? Often have I seen them at work in autumn quite early in the morning as busily as in summer time, dashing in and out of their hives with all the activity displayed in June and July, yet oftentimes all is quiet long before noon. In both cases the answer is doubtless the same. The supply of both honey and pollen being limited, they simply cease from their labours because they have gathered all which the flowers have been able to produce during the secretive season of night. No one, at least, will venture to doubt that this is true as to the gathering of the honey. The blossoms at best produce but a limited quantity of nectar, which is soon extracted from the flowers and carried off by the diligent insects. If any remains it is only the coarser and more acrid or pungent secretion of the flowers, which has no attraction to the palate of the bee, although, as in the case of ivy honey, it may be agreeable to the multitude of wasps and flies who may be seen still thronging the bushes long after the bees have regaled themselves sufficiently. Yet some may demur to the correctness of the same reasoning, as to the cause why bees cease so early from pollen gathering, even before the flowers have attained their meridian splendour or developed the half of their fragrance. Will the following facts be deemed sufficient to prove the case as I put it?—

Having resolved to try whether my bees would take the pea flour recommended by some apiarians in any considerable degree, this spring in particular when flowers are so unusually scarce, I put a few teaspoonfuls into the crown of a straw skep in the warmest and sunniest nook in my garden close to some of my strongest hives. The day was still and sunny, though decidedly cold. In a couple of minutes two or three bees had found it out, and were soon busy nibbling and carrying off the flour. The hive was never empty as long as the sun shone out warmly, yet there seemed not to be much enthusiasm in those who visited the skep. No quantity was carried off which could make any appreciable difference in the pollen riches of the hive. Having read elsewhere that some of this flour had been put into crocus blossoms, and there had proved most attractive, I began yesterday morning (March 7th), to try the experiment myself. It was a most lovely day from dawn to sunset, as soft as many a day in early summer. Three times during the day I went round the clumps of crocuses and half filled several hundred blossoms with the pea flour, just such as the grocers sell for making peasoup. It is sold in small packets for 2*d.* each. In a quarter of an hour the said crocus clumps were thronged with bees, often as many as thirty or forty bees to a single clump. In an hour and a half the pea flour was all gone, and the bees' activity had almost ceased. Some few were foraging and picking up the crumbs that had fallen on the ground or on the foliage around. Meanwhile the straw skep with its much larger quantity of flour was more continuously visited, but never with such eagerness or with such numbers as the crocus blossoms. Again and again in the course of the day I renewed the supply of flour in the blossoms, even up to three o'clock in the afternoon, and always with the same result—a fresh rush of bees so long as the flour lasted, and quietness was restored when it was exhausted. To-day, though not so balmy as yesterday, and with some wind from the east but equally sunny, has shown the same result, and I am satisfied as to the correctness of my surmise in the matter of pollen as well as of honey, and I have no doubt as to the great value of pea flour in such a season as this, supposing that it is really used as food for the young bees, and that there is no mistaken instinct in its being gathered at all.

I know some have strongly condemned any artificial supply of pollen to bees on the ground that they gather already a far larger quantity than they need. I cannot endorse this theory. I believe that bees never gather more than a prudent instinctive foresight teaches them to collect and store away as necessary for their wants. It is true we find large quantities in most hives in the autumn when we make our annual harvest of their honey stores; but would it not all be needed if we did not rob the bees so mercilessly, supposing it to be true, than the breeding of young bees goes on more or less vigorously throughout the winter, even in the coldest weather? Anyhow in such an exceptional year as the present, no reasonable man can think it otherwise than prudent to supplement so necessary a condiment, without which our hives must become weakened, and which is not to be had otherwise. In another three weeks we shall doubtless have an abundance of the natural supply. Till then let us give our bees as much pea flour as they choose to take up.—B. & W.

OUR LETTER BOX.

WINTERING HIVE IN PEACH HOUSE (*Old Subscriber*).—"A hive of bees which was kept in a peach house all winter was placed in the garden on the return of fine weather, and seemed to be all wrong. The few bees which came out seemed to be glued over with honey. A neighbour whom I consulted lifted the hive up and found the floorboard covered half an inch thick with dead bees, and something resembling sand or meal. Can you tell me what is the reason and what I ought to do?" Your hive is in a bad condition, but we cannot be quite certain what was the cause of the death of so many bees. It may have been old age, dysentery, or confinement. The dust resembling meal which was found on the board was diseased pollen, or a mixture of pollen and mites which had fallen from the cells. Pollen, like cheese, is often attacked by animalculæ, and when attacked it rolls out of the cells—a moving mass—and accumulates on the floorboard. The bees that appeared glued or unsightly on coming out had been wading amongst dead bees covered with the dirt and dust of the hive. The board should be well cleaned, and the living bees fed with a little warm syrup twice a-week. If the hive contains bees enough to hatch brood it will live and may do well.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. March.	9 A.M. Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	IN THE DAY. Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 12	30.097	44.1	41.3	W.	41.0	55.6	36.2	93.7	31.8	—
Th. 13	30.364	34.2	32.6	N.N.E.	41.0	52.7	29.6	97.4	28.2	—
Fri. 14	30.245	32.9	32.4	N.E.	40.0	41.0	30.9	44.0	29.3	0.115
Sat. 15	29.836	42.4	40.6	W.	39.2	50.8	33.0	93.7	33.4	—
Sun. 16	29.684	48.1	45.4	S.W.	40.3	54.5	41.5	83.2	37.2	0.058
Mo. 17	30.098	39.1	38.0	E.S.E.	41.1	44.4	37.9	53.3	35.1	—
Tu. 18	29.916	42.9	42.0	S.	41.0	52.2	37.2	72.6	34.0	0.140
Means	30.034	40.5	38.9		40.5	50.2	35.2	76.8	32.7	0.313

REMARKS.

12th.—Overcast and dull, with dark clouds at times all the morning; fine with sunshine after 4 P.M., stormy sky at sunset; beautiful starlight evening, but cloudy after 10 P.M. [starlight night.

13th.—Very cold but beautifully bright day, almost cloudless sky; fine

14th.—Very damp and cold, snow and sleet all the morning; rain in afternoon and evening; very uncomfortable day.

15th.—Bright sunny day, with cold wind.

16th.—Fine in early morning, rain commenced at 10.45 A.M.; slight hail shower at 1.13; solar halo 4.55 P.M.; bright starlight evening.

17th.—Dull grey day, slight rain between 10 and 11 A.M.; few gleams of sunshine in afternoon; cloudy evening.

18th.—Foggy morning, brightened a little after 9 A.M., but only for a short time, slight drizzling rain at 11.45 A.M., thick and gloomy; much clearer and finer between 5 and 6 P.M., bright sky at sunset; rain in night.

Temperature almost exactly the average.—G. J. SYMONS.

COVENT GARDEN MARKET.—MARCH 19.

OUR report remains the same as last week.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples	½ sieve	2 0	to 5 0	Melons	each	0 0	to 0 0
Apricots	dozen	0 0	0 0	Nectarines	dozen	0 0	0 0
Cherries	℔ lb	0 0	0 0	Oranges	℔ 100	4 0	12 0
Chestnuts	bushel	2 0	6 0	Peaches	dozen	0 0	0 0
Currants	½ sieve	0 0	9 0	Pears, kitchen	dozen	0 0	8 0
Black	½ sieve	0 0	0 0	dessert	dozen	3 0	8 0
Figs	dozen	0 0	0 0	Pine Apples	℔ lb	2 0	4 0
Filberts	℔ lb.	0 9	0 0	Plums	½ sieve	0 0	0 0
Cobs	℔ lb	0 9	0 0	Raspberries	℔ lb.	0 0	0 0
Gooseberries	quart	0 0	0 0	Strawberries	℔ oz.	0 6	1 6
Grapes, hothouse	℔ lb	3 0	8 0	Walnuts	bushel	0 0	0 0
Lemons	℔ 100	4 0	8 0	ditto	℔ 100	0 0	0 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes	dozen	2 0	to 4 0	Mushrooms	pottle	1 6	to 2 0
Asparagus	bundle	6 0	12 0	Mustard & Cress	punnet	0 2	0 0
Beans, Kidney	℔ 100	1 0	1 6	Onions	bushel	2 6	4 0
Beet, Red	dozen	1 0	2 0	pickling	quart	0 4	0 0
Broccoli	bundle	0 9	1 6	Parsley	doz. bunches	2 6	0 0
Brussels Sprouts	½ sieve	2 0	4 0	Parsnips	dozen	0 0	0 0
Cabbage	dozen	1 0	2 0	Peas	quart	0 0	0 0
Carrots	bunch	0 4	0 8	Potatoes	bushel	3 6	4 0
Capsicums	℔ 100	1 6	2 0	Kidney	bushel	4 0	5 0
Cauliflowers	dozen	3 0	6 0	Radishes	doz. bunches	0 0	0 0
Celery	bundle	1 6	2 0	Rhubarb	bundle	0 0	0 6
Coleworts	doz. bunches	2 0	4 0	Salsafy	bundle	0 9	1 0
Cucumbers	each	0 6	1 0	Scorzonera	bundle	1 0	0 0
Endive	dozen	1 0	2 0	Seakale	basket	2 6	3 6
Fennel	bunch	0 3	0 0	Shallots	℔ lb	0 3	0 0
Garlic	℔ lb.	0 6	0 0	Spinach	bushel	2 6	4 0
Herbs	bunch	0 2	0 0	Turnips	bunch	0 2	0 4
Leeks	bunch	0 2	0 4	Veg. Marrows	each	0 0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 27—APRIL 2, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
						h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
27	TH	Royal Society at 8.30 P.M. Sale of Orchids at Stevens'	54.1	34.1	44.1	5 49	6 22	6 57	11 58	6	5 32	87
28	F	Royal Institution at 8 P.M. [Rooms	53.0	34.0	43.5	5 47	6 24	7 30	morn.	7	5 14	88
29	S		53.7	33.4	43.6	5 45	6 25	8 14	1 0	8	4 56	89
30	SUN	5 SUNDAY IN LENT. PASSION SUNDAY.	53.7	34.3	44.0	5 42	6 27	9 11	1 52	9	4 37	90
31	M		55.3	33.9	44.6	5 40	6 29	10 18	2 34	☽	4 19	91
1	TU	Zoological Society at 8.30 P.M.	55.0	34.4	44.7	5 38	6 30	11 34	3 6	11	4 1	92
2	W	Society of Arts at 8 P.M.	57.8	36.7	46.9	5 36	6 32	0 a 55	3 31	12	3 43	93

From observations taken near London during forty-three years, the average day temperature of the week is 54.6°; and its night temperature 34.4°.

THE GRAPE VINE, AND ITS CULTURE.—No. 1.

PROBABLY some of your readers when they observe the heading of this article may think that the subject has been written about so much in the *Journal of Horticulture* and other gardening papers that nothing new can be said respecting it. To a certain extent this is true; but Vine-culture is increasing so rapidly, and is being taken up by so many who were never "brought up" to it, that no annual volume of any horticultural paper can be regarded as complete unless it contains a full and modern treatise on the Grape Vine; in fact the many answers to correspondents which weekly appear in the Journal respecting the Grape Vine testify that many readers are yet deficient in their knowledge of the culture of this delicious fruit, and their demand for information should make any practical notes on the subject acceptable.

Most people know by this time that the Vine is indigenous to Asia, but from its being found growing wild in Greece, Italy, Armenia, and in many of the southern parts of Europe it will be well not to define its nativity too closely. However, no discussion on this point need be entered into, as its native requirements do not bear any important relation to the treatment it generally receives in close warm houses in this country. In this respect we are of opinion that the Vine is often grown at greater expense than is necessary.

Much may be said about propagation and treatment of the young canes during the first year of their existence. In many cases eyes and cuttings of Vines are inserted in January, but they seldom make satisfactory growth until April or May, and probably the best of all times to propagate the Vine is from the middle to the end of March. At that time they start immediately into growth and maintain it until they are fully developed; whereas those inserted earlier often assume a slow sickly growth, and we know that with many plants, including the Vine, this is a bad beginning. Anything checked in its infancy is stunted for a considerable time. This being the case, we will decide on propagating our Vines in March.

Whether eyes or cuttings are employed the wood from which they are obtained should have been fully matured during the previous season. Wood of medium strength is the most desirable. Some think if they propagate from strong thick wood a strong robust plant must be the result, but the opposite is more frequently the case; because, however strong it may be, such wood does not start so freely into growth as medium-sized wood, at least we have found it so.

The term Vine "eye" might be made more intelligible by being called a Vine "bud," for propagating from an eye is simply employing a bud with a piece of the wood attached to it. To do this the shoot should be cut across about a quarter of an inch above the bud and 2 inches below it. The lower or longest part should then be cut in a slanting direction from about half the length to a sharp point at the end. This is all the preparation required, and each bud should then be potted singly in the centre of a 3-inch pot filled with a mixture of half loam and half leaf soil or horse dung. We always fill the number of pots required first. A hole about the size of the forefinger is then made in the centre of each pot; this is filled with silver sand, and the wood is forced into it. When this operation is done early, say in January or February, the pots may be allowed to remain in a cool shed until March, and then be placed in heat; but in making and inserting eyes now they may be placed at once in their growing quarters. A bottom heat between 70° and 80° causes them to start quickly into growth, and an air temperature about the same is very favourable to their development; but in April, May, and onwards they make very satisfactory progress in a cold frame or house. Care should be taken at all times that the soil about the young Vines never becomes too dry. This is injurious to all plants in a young state.

The bud will show a few leaves before many roots are formed, but as soon as a shoot begins to lengthen roots will become abundant, and before they are potbound or matted the plants must be shifted from the 3-inch into 5-inch pots. Good drainage must be provided now, and about half the potting mixture should consist of the best loam obtainable, the other half to consist of well-decomposed cow dung, or horse droppings in a moderately fresh condition, leaf soil, and river or silver sand; a handful of soot, with a 4-inch potful of ground bones being added to each bushel of the mixture. Bones may be dispensed with if liquid manure is intended to be liberally applied afterwards.

In shifting them from their first pots the roots should be disturbed as little as possible, and the soil must be always made firm. After potting, the place in which they are stood should be kept close and moist until the roots have entered the new soil. After this the Vines should have abundance of air and sunshine on all favourable occasions. Supposing Vine eyes are inserted in March, they will be ready to pot as described by the end of April, and if extra strong canes are wanted they should be potted in 8-inch and 10-inch pots in June.

Good canes for planting in autumn or the following spring may be grown in 5-inch pots; but the strongest of canes for planting or for fruiting in pots the following season should be grown in 10-inch pots. At the last potting the same rules must be attended to as before, and as the cane will now be of considerable length care must be taken that it is not broken or twisted. As a rule they may be shifted from 5-inch pots into larger ones when the young cane is from 3 to 4 feet high; but a stake sufficiently strong to keep it upright should be placed to each Vine from the time the young shoot is a foot high. This stake should not be removed at subsequent pottings, and the young shoots should not be tied to any wires or permanent fixture until the Vines have been potted for the last time. After that the stake may be dispensed with if other means of support be convenient.

During the time young Vines are making their principal growth it is very important that they be liberally supplied with nourishment either by good soil or abundance of liquid manure. Never let them become dry at the root, or many will perish, and the canes must be as fully exposed

to the sun as possible. If these few particulars are carefully attended to excellent young Vines may be grown from eyes in one season.

June, July, and August should be devoted to their substantial growth; September and October to their ripening. When September is hot and mild they may be placed against a south wall out of doors, but the system of placing them out in such a position when the wood and leaves are tender and green is not a good one. When brown and leathery it is different. Muscats, Lady Downe's, Duke of Buccleuch, and others of this description take longer, as a rule, to ripen their wood than those of the Hamburgh class, and the former sometimes require a little extra heat to complete their ripening.

By November every leaf should have fallen off, and the canes should be hard and nut-coloured to the point. How to dispose of these to the best advantage must be told in another article; but it may be stated that Vines are amongst the easiest to propagate of all fruit trees or bushes, and many amateurs, as well as gardeners, would find Vine propagation both profitable and interesting.—A KITCHEN GARDENER.

THE COMMON WHITE GARDEN PINK.

WHERE these are forced in pots they will now be fast unfolding their blooms, and will be much appreciated where sweet white flowers are in demand. It is difficult to get them into flower much before the end of February under the system of cultivation we pursue. Our earliest batch of plants is later than usual, owing to the sunless weather we had at the time we were about to introduce them into heat, and we refrained from doing so on that account. We find the common Pink, if forced into flower in a close confined atmosphere the flower spikes draw up weakly, and the flowers are very small compared with those grown under more natural conditions. This season has been very unfavourable for admitting air, which Pinks enjoy in all their stages of growth. We prefer being a few weeks later in forcing such plants into flower rather than spoil them by trying to force them unnaturally.

We do not see in gardening establishments the forcing of the common white Pink carried out so much as it deserves to be. The flowers of the Pink being so deliciously fragrant renders them objects of attraction, no matter at what season of the year they are produced; but when brought into flower during February, March, and April they are especially welcome. There is no plant that would give greater pleasure to the amateur in his greenhouse, and under greenhouse treatment it would come into flower at least six weeks or two months earlier than those in outside borders. The amateur will find no plant so simple and easy to grow as the Pink, provided our system of cultivation is followed, as we shall endeavour to give in detail.

In most gardens white Pinks abound in quantity in the shrubbery borders, and after planting are frequently left to take care of themselves; however, under these conditions they continue to exist, and if left alone soon spread into large clumps and produce a mass of their white flowers in June. The flowers are certainly only short-lived, nevertheless the plants are worthy of pot culture to be forced into flower in early spring. If none already exist in the borders they should be planted at once where they are not too much shaded with trees, and where sufficient sun can act upon them so as to ripen the shoots in early autumn.

From the middle to the end of September we select all the strongest shoots and those most likely to bloom the following spring, any small, weak, or puny shoots being discarded, as they will not produce a flower. The cuttings are taken off with a portion of the old wood attached, and eight or nine are placed in a 3-inch pot, or double that quantity in a 5-inch pot. The compost used is loam and sand; a good deal of sand is inserted about halfway up the pot where the base of the cuttings will rest. After being inserted they are placed in a cold frame and receive a good watering, and are only shaded for a few hours during the hottest part of the day. No attempt is made to keep the frame close, plenty of air is given day and night—if kept close the cuttings damp. Under this treatment with us nearly every cutting takes root.

After the cuttings are well rooted they are removed to a shelf close to the glass where frost can be excluded. They remain there until they are introduced into an intermediate house to bring them into flower. Strong heat must be avoided in forcing them into flower, and air must be admitted on all favourable occasions. Under these conditions nine of the cuttings out of ten will produce a flower, and form striking little objects of interest either for small vases, the ornamentation of the conservatory, or for any kind of decoration for which it is necessary to use them.—W. BARDNEY.

HINTS ON LANDSCAPE GARDENING.—No. 8.

TREE-PLANTING ON SLOPES.

SOME six months ago the seventh article on this subject appeared in these pages, and then the writing was unavoidably interrupted; but it was not so with the practice, for during the autumn and winter I have been much engaged in landscape work, and now return to my labour with the pleasant feeling arising from an enlarged experience and greater knowledge of the subject. Tree-planting was the last theme, let us return to it.

I have had occasion lately to make a special study of a long sloping bank, or rather hill, forming the side of a valley, which gently rises from the margin of a piece of water to a height of about 100 feet. The face of the slope is broken, and there are three hollows running up from the water, not side by side, but sufficiently far apart to admit of distinct treatment; but as two of them converge at the top upon a fine old Birch standing out clearly upon a little plateau, it appeared to me most desirable to treat these two little glens and the high broad ridge between them as component parts of a general plan, thus forming a bold and striking feature in the appearance of the valley. The object in view was to produce a fine effect from a given point on the other side of the water, where there is a favourite seat, and where also a winding path turns with an abrupt curve out of a thick wood to the water's edge. The soil of the ridge is a deep loam, and it has been planted with Turkey Oaks (Quercus Cerris), which will some day doubtless form a handsome grove, for this Oak grows fast in such soil and makes splendid trees in about fifty years. Holly planted freely will form an agreeable undergrowth; and near the water there are Rhododendrons, Mountain Ashes, and Bracken. The latter will have to be kept within due bounds, for it grows from 6 to 8 feet high, having probably been established there for hundreds of years. Holly, Bracken, Rhododendron, and Mountain Ash, with bold patches of Heather, clothe the sides of one glen; the other, being swampy, has Sedges and Osmundas planted along its bottom, and the slopes will be turned to account for a selection of many ornamental kinds of Willow.

The third hollow hardly partakes of the character of a glen, having a broad almost flat bottom with steep sloping banks, which take a wide semicircular sweep at the upper end. The bottom, although not required for a path, was so suggestive of one that it was left open, and Rhododendrons were planted up the slopes on either hand, not following a straight line, but at some points coming within a yard or two of the bottom and at others running upwards, leaving bold patches of the slopes unplanted. Above the Rhododendrons there are Beech trees at considerable distance apart, with a few choice and distinct Conifers, such as Abies Morinda, A. Albertiana, A. Douglasii, and Taxodium distichum. To these I think of adding young trees of Pinus excelsa. These trees are not in formal rows, but are mostly standing singly in suitable positions on the sides and beyond the tops of the slopes. At one or two points there will be rather large clumps of Pinus excelsa, extending a little way down the slopes and running back into the woodland above, there forming dense masses.

I have shown that this method of planting an irregular hillside is more for the production of pleasing effects at a little distance than for the close inspection which paths running along it would afford. There are a dozen other ways of planting it, each equally good; and without laying down arbitrary rules, it may be stated generally that when such slopes form part of dressed grounds of small extent a more elaborate style of treatment would be advisable—greater variety, but no striving for startling effect. Part might be turfed, with paths leading to the chief objects of interest. Choice shrubs and trees may be planted on the turf, any that are tender being planted in sheltered nooks specially prepared for them among the hardy shrubs or afforded by inequalities of the surface. Any such features may be introduced or turned to account without clashing with others. Jutting rocks may stand out amid a partial clothing of trailers, or furnish homes for those little plants of miniature growth but exquisite forms termed alpine plants, and a path brought naturally past them to admit of that close inspection such "curios" invite; but we must have no high-piled heaps of rock on the turf. Make rock beds

if you will—I know nothing more ornamental—but relegate such miniature Alps to the children's playground.

It is in a ravine that rocks should play a more prominent part, plenty of shelving strata or projecting crags being generally found along its steep sides. I have had two such ravines to treat, and have confined the planting to trees and shrubs in keeping with a semi-wild scene. The Birch tells well there, and is planted singly in suitable positions from half way up the sides to the tops, where an occasional large clump yields its long flexible pendant branches to the sway of every breeze, and the white-barked stems enliven the scene at all seasons of the year. Soon now will the opening buds clustering thickly upon every branchlet have a charming appearance, brief, yet beautiful by its freshness and delicacy. Hawthorn pink and white, Laburnum and Holly, with large masses of the common yellow, the white, and the late yellow Broom, with Mountain Ash, wild Guelder Rose and Heather, afford sufficient clothing for the sides. Bracken, too, is employed largely in large irregular beds, while many a choice hardy Fern finds a snug home among the numerous nooks that here present themselves. In one ravine a trout stream is taken advantage of to form pools, cascades, and waterfalls; at some places rushing among intercepting boulders, at others pouring down over the rock, and then gliding on through comparatively quiet pools fringed with Fern under the shade of overhanging branches. Water tossed in the air through a thousand jets, and made to fall down costly cascades of dressed stone, may excite our wonder; but the whole thing is too artificial—too toy-like to afford such genuine pleasure as does my "babbling brook," the treatment of which forms a special and most engrossing study, not lightly to be taken up nor easily mastered. If a cascade is made the planting must be done so as to impart and receive beauty from it, vistas being made to admit of its coming into view from the most favourable points, and rich masses of foliage grouped so as to form an appropriate background.—E. LUCKHURST.

BIRDS AND GOOSEBERRIES.

I AM much in the same predicament as "WILTSHIRE RECTOR." I do not prune till the Gooseberries are big enough for a pie; I then cut out twigs and Gooseberries. If I were to prune beforehand I should never have a Gooseberry. I do not wish birds to be annihilated, but of late they have increased too much upon us. The year before last they ate all my small fruits, and then pulled down and pecked the Pears. Before the frost set in I had five dozen blackbirds and thrushes shot. There is no danger of annihilation in a wooded country. I twice counted thirty-seven of these birds on an acre of grass near a farmer's garden before the winter set in.—W. F. RADCLYFFE.

EFFECTS OF THE SEASON—ROSES.

WE may now reasonably hope that the winter is ended, at all events in the west. But we shall have cause to remember the late winter with any but grateful feelings on account of its destructive severity.

My Roses have been killed by hundreds, and fortunately I had not bought any this winter, or most likely they would have shared the same fate. The Teas have not suffered more than the Hybrid Perpetuals, but those that remain are looking very sickly. I have had to throw away hundreds of plants which, though not dead, were so injured that I did not like to give them away. In consequence I have a large space unoccupied on which I shall grow Potatoes. This, I apprehend, will be a good change for the ground, as no crop, I believe, sweetens and cleans soil so much as these useful tubers.

Signs of spring are not wanting in my garden. All my Snowdrops, Crocuses, and Roman Hyacinths are fully out in bloom, and a few days since I had a bloom of Iris reticulata. This is a very early-blooming species, but is not supposed to be so early as Iris Histrio, yet the latter is not above the ground. All my Ixias, Babianas, and Sparaxis have been killed, and my Persian Ranunculuses also.

I have received accounts from friends in the midland counties who have lost all their Teas and Noisettes. I do not know when I shall be able to begin pruning. It is now the third week in March, and most of the trees are only beginning to shoot. Probably I shall not prune my trees before April—the time that I generally cut the Teas—and unless we have suitable weather in April and May, the blooming season will be very late.

With regard to the discussion that has been commenced in the Journal about scentless Roses, I am inclined to think far too much has been said respecting the importance of perfume. So far as Rose shows are concerned perfume is the very last point to be considered, if indeed it is ever taken into account. I remember that the Royal Horticultural Society once gave a prize for the most fragrant Roses in a distinct class, and the late Mr. John Keynes advertised his winning the first prize in the class for "smell." But this is a thing of the past, and the National Society has no prizes of this kind. As to leaving out "the Baroness" because she is deficient in perfume, you might as well speak of leaving out Centifolia rosea because the wood is covered with thorns. If Baronne de Rothschild were to be left out of Rose stands because it is destitute of perfume, the sooner Rose exhibitions are abandoned the better.—WYLD SAVAGE.

YOUNG GARDENERS AND THEIR DIFFICULTIES.

IN former years I, in common with many young gardeners, shared in the belief that nothing pleased "an old hand" better than keeping younger men in the background. It might have been the case with a few individuals, but I, for one, have good reasons for thinking how wrong we were to entertain such ideas of head gardeners generally. The ready response of several experienced men to "YORK'S" appeal affords practical proof at all events of the unselfishness of some "old ones," and I hope that theirs and the Editor's advice will not be lost on the rising generation of gardeners. "YORK" no doubt fully appreciates the sympathy expressed, but judging from my own experience I certainly think that what he wants is still more practical advice.

"Do the necessary work first, and if possible finish one job before commencing another," is no doubt very good advice; but unless I am greatly mistaken, What is the most necessary work to be done? is one of the greatest perplexities of young gardeners. I should not advise them to study an unlimited collection of books, as I found that the many and varied directions they contained only tended to still further bewilder me. The late Mr. R. Fish's "Work for the Week" in the *Journal of Horticulture* was my greatest help, and I certainly cannot point to any more sound or practical advice than the "Work for the Week" in the Journal of the present day contains. It is most comprehensive, and a young gardener cannot do better than be guided by it, bearing in mind that, although the directions are given suitable for the following week, they should not be carried out at all hazards, but should be followed more or less according to local circumstances. If, therefore, I found it necessary to be guided by the "Work for the Week" I should study, and, on the first favourable occasion, follow the advice given from time to time, and thus be level with the writer—the present weather having evidently delayed his operations.

It is very right and proper to be on good terms with the cook, and the best way of effecting this is to keep that individual well supplied with seasonable vegetables. In the hope of being able to assist "YORK" and others similarly placed I will briefly give my experience on matters connected with this subject. I have been rather unfortunate in my experience with kitchen-garden labourers, as I have never received any very reliable information from them, at the same time I must admit having found out from them to a certain extent how the garden had been previously cropped. It certainly requires much tact in a young gardener to manage them, especially if they find them inexperienced. Jealousy of one another is a prevailing evil among them; give one the lead and he will keep the others out of the garden as much as possible; consequently, instead of work being completed at the proper time, it will be done when too late. This applies more especially to the sowing of large breadths of seeds, or the planting of large quantities of Broccoli, &c., the weather dry and the soil in good working order for the former, or a dull day after rain for the latter. This state of things may be completely reversed on the following day, and if the work is only half completed the gardener will see how wrong he has been not to concentrate his strength and completing the work at once, instead of leaving it to one or two men. Much Celery is frequently spoilt by not taking advantage of a favourable day for earthing it up.

For most establishments you cannot grow too many Potatoes, and in many instances double cropping has to be resorted to to obtain sufficient, and also to have a full supply of winter vegetables for winter use. "YORK," no doubt, has seen the plan advocated by some writers of placing the rows of Potatoes suffi-

ciently wide apart to admit of one row, and Peas so apart as to admit three or more rows of Broccoli, &c., being planted between them. I have tried both plans, and do not recommend either. My practice is to plant large quantities of heavy cropping early Potatoes, such as Mona's Pride, Veitch's and Rivers' Ashleaf in rows 30 inches apart, and such sorts as Snowflake, Lapstone Kidney, and Schoolmaster in rows 3 feet apart. I advise "YORK" to plant a bushel at least of each of the above varieties. A good dressing of manure is given, which is dug in deep enough to prevent actual contact with the tubers. As soon as the crop of the early varieties is matured (the haulm need not of necessity be decaying), the whole is lifted and stored for immediate use, the soil levelled, not dug, with a fork, well trodden, and on the first favourable opportunity planted with Broccoli, Savoys, Brussels Sprouts, &c. If manure is plentiful mulching is resorted to rather than digging it in. The ground being firm, the growth is more sturdy and in every way better adapted to withstand a severe winter than those muddled in among Potatoes or drawn up between the Peas. The ground occupied by the second early Potatoes when cleared is manured and dug for successional sowings of Lettuce, Endive, Turnips, Carrots, winter Spinach, &c.

With regard to Peas I was advised, when commencing my duties as head gardener, to place the rows as far apart as the varieties grew high, and to make a sowing of one or more sorts as soon as the previous sowing was fairly in sight. The advice I found both simple and good; at the same time I must confess that I missed a sowing or two of both Peas and Lettuces, and found myself in a difficulty accordingly. Spinach does well between the Peas, and I have found a row of Cauliflowers grown in a similar position come in very useful.

I would strongly advise young gardeners not to sow seeds of the Brassica tribe in driblets in out-of-the-way places; but after the first sowing—under a wall, as advised by the writer of "Work for the Week"—giving the preference to a good open position, sowing good quantities, and allowing every plant plenty of room. At planting time they will then have an abundance of sturdy plants, which will be almost invaluable, especially the June sowing of the smaller varieties of Cabbages or Coleworts. By all means keep up a good supply of Lettuce, and let these also be grown in an open position. It is with these and other vegetables that must necessarily be sown often and at regular intervals that young gardeners are apt to be behindhand.

Tomatoes are not grown under glass so much as they deserve to be, as they are always in demand, and are easily grown. They will perfect a crop of fruit in either pots or boxes placed at the ends of vineries, Peach houses, &c.; in fact anywhere, provided they obtain a sufficient amount of heat and light, and when well established plenty of moisture at the roots. It is not yet too late, as, if sown now, they can be had fit for use during June at the latest.

When once kitchen gardening is well understood it possesses perhaps greater attractions for the gardener than does any other department under his charge; and the subject is obviously one of general importance.—W. IGGULDEN.

SHOW AND GARDEN ROSES.

I THINK, as a lady, I have just cause to be indignant with your correspondent Mr. C. P. Peach for writing of me in these terms: "We do not want to go back to flat Roses with irregular petals like Baronne Prevost." Now, sir, if I do not possess the embonpoint which your correspondent seems to admire, I yet possess many other "points" quite as valuable. I know that I am not a show Rose, nor does my old friend Mr. Wm. Paul recommend me as such; nor do I aspire to be "boxed up" and carried round the country to be gazed at by wondering rustics; but if Mr. Peach means to say that I am not still a good garden Rose I think there will be many who differ from him in opinion. I think for stature, complexion, sweetness, and constitution—four valuable points in any lady—I yet compare favourably with many of my younger rivals. I am not bald and solitary like most of the Roses met with at flower shows, but am usually surrounded with two or three young Rose buds, which are at once my joy and the delight of my visitors whether they find me in the drawing-room or the garden. Mr. Peach's "fifty experienced growers and judges" reminds me of the counsel who when about to cross-examine a witness thus addressed him: "Now, sir, have you come here to swear that you saw the prisoner commit this act? Take care, sir, what you are about, for I can bring fifty witnesses to swear that they didn't see him." Mr. Wm. Paul says that I am a grand Rose from certain points of view, Mr. Peach's fifty witnesses would probably swear that they never said I wasn't.—BARONNE PREVOST.

CARPET BEDDING.

VARIOUS designs suitable for carpet beds have been submitted, some of them more or less artistic, but the one now figured is of a simple and pleasing character, and easily adaptable to any round bed of from 4 to 8 feet in diameter. The mode of planting submitted is that which was employed last year by Mr. McIntyre at Victoria Park, where decorations of this character are carried out so largely and well. As this is the period of the year when preparations are being made for next season's display, and as carpet bedding has so many admirers, we purpose submitting a few further designs as calculated to afford aid to those who have not had opportunities of seeing the most modern and successful arrangements of plants of this mode of garden ornamentation.

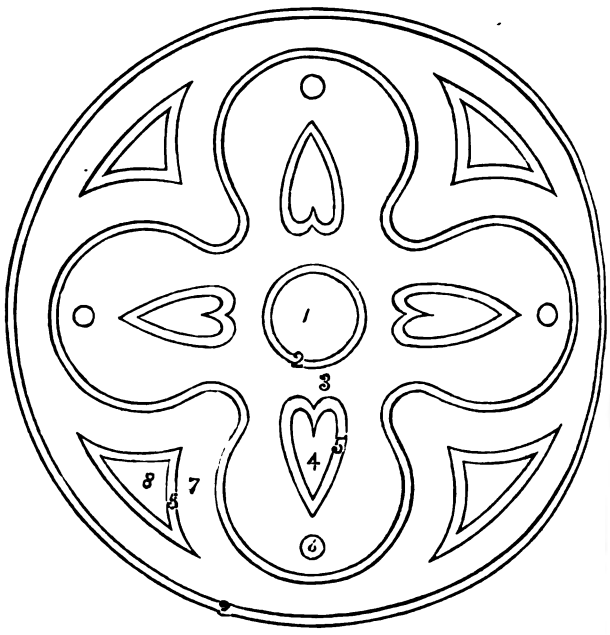


Fig. 32.

1, Coleus Verschaffeltii
2, Sempervivum montanum
3, Sedum glaucum
4, Alternanthera versicolor grande
5, Golden Pyrethrum
6, Pachyphytum bracteosum
7, Mentha Pulegium gibraltarica
8, Alternanthera amœna

SETTING PEACHES.

I HAVE benefited so much by the *Journal of Horticulture* that I am almost ashamed to say all I have learned from its pages from time to time in case you might think I knew but little before I became acquainted with it. Still I am bound to admit that the Journal has been the means of teaching me very much indeed. On glancing over your issue of 13th inst. I observed that you highly commended Mr. Ollerhead's plan of fertilising Peaches. It occurred to me that as I was thinning mine to send you the enclosed branch as a sample of our "set"—worked upon a plan I read of years ago in the *Journal of Horticulture*—namely, shaking the trees when they are in full bloom. This, and this alone, I do to fertilise them. I enter the house once or twice a day, and take my closed hand and strike all the main branches sharply. A very large house can be done this way in one minute. But I believe at the same time that no aid to fertilisation will be of any use if the wood has not been perfectly ripened and the trees healthy. Well-ripened wood is the fertiliser I believe in.—B. G., *Co. Down.*

[The branch we have received is both highly complimentary to you as a cultivator and to the simple mode you adopt in setting the fruit. Twelve fine Peaches on a shoot 6 inches in

length suggest that you have much more trouble in thinning than setting the fruit.—Eds.]

ROYAL HORTICULTURAL SOCIETY.

March 25th.

Owing to the extraordinary inclemency of the weather—a piercing easterly wind blowing and snow falling the whole of the day, Her Majesty the Queen of the Belgians was unable to accompany the King in his visit to the meeting. Any guests of the Royal Family of England honouring by their presence the shows of the Royal Horticultural Society are sure to meet with a warm welcome, but when that guest is a monarch, himself an ardent horticulturist, representing also one of the chief horticultural centres of Europe, one of the brightest of bright receptions was sure to be accorded. The commercial well-being, horticulturally speaking, of Belgium and England are so interbound, the trade in plants between the two nations is so great, that any event that can foster a closer alliance is certain to be encouraged whether the scene of it be on the eastern or western shores of the German Ocean. From time to time horticultural Belgium has entertained horticultural England splendidly, for the King's table has been spread for British guests. It were, then, especially meet that on the occasion of His Majesty's visit that the chief metropolitan cultivators should unite to do him honour by arranging their floral treasures for his inspection. By his visit to the Society on this occasion His Majesty saw English horticulture in its ordinary routine garb, and bearing this in mind he could scarcely fail being impressed with its excellence. The display was totally distinct from that of a great exhibition for which long preparations are made: it was a simple gathering together, under most unfavourable circumstances as to weather, of what nurseries and gardens happened to be in possession of at the time—a floral gathering convened at a fortnight's notice. Fine as the display undoubtedly was, it would have been still finer had the weather enabled the rich collections of Orchids now flowering in the nurseries to have been removed. The conservatory, however, was quite filled, and His Majesty, who arrived shortly after twelve, spent a considerable time in examining the collections. In attendance on the King were General Baron de Prisse, and Major General Gardiner; the President of the Society, Lord Aberdare; Sir Joseph Hooker, Dr. Hogg, and several members of the Council. His Majesty greatly admired the different groups and many individual plants, and conversed freely and affably with the exhibitors. Before His Majesty left the conservatory he was pleased to accept a splendid bouquet of Rose buds, presented by Mr. Harry Turner of Slough on behalf of his father Mr. Charles Turner, as a present to the Queen of the Belgians. The Roses were interspersed with other flowers and fronds of Adiantum, which gave the bouquet a very elegant appearance. His Majesty expressed his great regret that the Queen was unable to be present to receive in person a bouquet which he characterised as "lovely." The King was also pleased to accept from the hands of Mr. Elwes a presentation copy of his valuable book on Lilies, which he greatly admired. A third presentation of a "button hole," which Mr. Aldous placed in his Majesty's coat, was also very graciously accepted. The Show was visited later in the day by the Princess Frederica of Hanover attended by Colonel Grenville.

Floral Committee.—James McIntosh, Esq., in the chair. An important feature of the meeting were the collections of Hyacinths. Messrs. Veitch staged a magnificent group of 300 plants, Messrs. Osborn, 120; Messrs. Carter about 100; and Messrs. Cutbush & Sons nearly the same number. The principal varieties in these collections are referred to in another column. Messrs. Veitch & Sons were awarded a gold medal; Messrs. Osborn and Son a silver-gilt Banksian, and Messrs. Cutbush & Son, who also exhibited Tulips and cut blooms of Camellias, a silver Banksian medal. Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston-on-Thames, also exhibited fifty Hyacinths, thirty-six Tulips, and twenty pots of Crocuses. In quality the Hyacinths were scarcely surpassed by any in the Show, the spikes showing to great advantage above the short rigid foliage. King of the Blues was remarkably fine, and very good indeed were La Grandesse, Mont Blanc, Marie, Koh-i-noor, Macaulay, Von Schiller, De Candolle, and some others. The Tulips also were excellent. The Committee, recognising the meritorious character of the collection, awarded to Mr. Moorman a gold medal.

Several groups of plants of great merit were arranged. The most extensive collection was from the nurseries of Mr. John Wills. The plants covered a length of table of about 50 feet. The central portion of the arrangement was extremely artistic. An undulated groundwork was composed of Selaginella apoda, amongst which nestled bunches of Tea Roses, grand sprays of Dendrobium Wardianum, and a few plants of Gloxinias, the post of honour—the centre—being occupied by the grand prize of honour, the Sèvres vase, awarded to the exhibitor at the Versailles Show. This charming floral panel was backed by small Palms, bounded at the ends by Maidenhair Ferns, and margined with Isolepis gracilia. Extending on the right was a large group of half standard Azaleas profusely flowered, associated with a groundwork of Maidenhair Ferns. A few fine-foliaged Begonias, also Cyclamens, Orchids, Cinerarias, &c., were employed in the arrangement. The corresponding flank of the central panel was composed chiefly of Dracænas in good colour, Crotons, Yucca filamentosa variegata, Nerium splendens variegata very bright, with a margin of very fine Gloxinias, Anthurium Schertzerianum, Bertolonias, Droseras, &c. Altogether Mr. Wills's was a very rich and imposing contribution, for which a gold medal was awarded.

Not quite so extensive but extremely rich was the collection arranged by Mr. William Bull. The front was composed chiefly of Orchids, arranged under a canopy of fronds formed by the back row of Cycadaceous plants. The central plant of Encephalartos Vroomii had a stately appearance, and in fine contrast was Monstera deliciosa (fruiting). Extremely elegant was Encephalartos villosus and Dæmonorops cinnamomeus, and distinct and massive in appearance was Davidsonia pruriens; but the flowering plants constituted the principal charm of the group. Striking amongst the Orchids was a wonderful example of Dendrobium Wardianum, the growth being nearly 4 feet in length, and contained upwards of forty grand flowers. Odontoglossom cirrhosum was largely represented and had an excellent effect; Dendrobium nobile was wonderfully well flowered. Lycaste Skinneri cerina growing in a 6-inch pot had ten fine flowers, and a cultural commendation was awarded for the plant. Odontoglossum Phalænopsis, O. Alexandræ, O. triumphans, and others were included, also Imantophyllums very good. Dracæna Goldiana was in good colour, and the group was brightened by good spathes of Anthuriums. One of the most distinct plants in the collection was the double Epacris onosmæflora flore pleno nivalis. The plant is very free, the growths being clothed with pure white perfectly double flowers. The group was relieved by a few Ferns, and was in all respects an excellent one, and well merited the gold medal awarded to the exhibitor.

Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, staged a pleasing group of miscellaneous stove and greenhouse plants. In the foreground Rhododendron Dennisonii was prominent with moderate heads of delicate blush white flowers. Amaryllis Firefly, A. purpurea, A. Fanny Williams, and A. Fair Star were very showy and brilliant, associated with such elegant-foliaged plants as Geonoma gracilis and Phœnix canariensis, Gleichenia dicarpa and G. semivestita. Dracænas Bausei and Renardii, well grown and finely coloured, had a good effect. Azaleas Flambeau, Duchesse de Nassau, La Superbe, and the Carmichael variety Princess Maude were bright and attractive, particularly the last. A large plant of Æchmea Maria Regina occupied the centre of the group, but it was past its prime, the richly-coloured bracts showing signs of fading. Aucuba himalaica nana had an abundance of brilliant berries, which, combined with its dwarf habit, render it an acquisition. Casuarina ericoides is a very elegant species, and showed to great advantage amongst the more massive-foliaged and flowering plants. A pan of Dionæa muscipula was also exhibited, the plants being in remarkably healthy condition. The whole group was backed up with fine specimens of Kentia Fosteriana, Azalea amœna, and Cycas intermedia, an immense Imantophyllum miniatum with a dozen large heads forming a corner plant. A small gold Banksian medal was awarded.

From Messrs. Paul & Son of Cheshunt came a group of Roses in good condition and colour for the season. The best Hybrid Perpetuals were Madame Lacharme, delicate blush white; Duchesse d'Ossuna, fine crimson; John Keynes, crimson, very good; Duchesse de Vallombrosa, flowers large and good substance; John Bright, rich lake; Capitaine Christy, large flower of a delicate pink tint; John Stuart Mill, a warm lake; and a good small Tea was also shown, Alba Rosea. The plants were grown in 7 and 8-inch pots, and were dwarf and well flowered. A silver-gilt Banksian medal was awarded for the collection.

Messrs. Charles Lee & Son of Hammersmith were awarded a silver Banksian medal for a miscellaneous collection of plants, composed of somewhat thickly placed specimens of Rhododendrons, hardy Azaleas, and Spiræa japonica, fringed with small Clematises and Hyacinths, and a border of Selaginella Krausiana, the background being principally formed with fan-leaved Palms. A large plant of Pandanus Veitchii reared its elegantly variegated foliage in the centre of the group. A group of plants was shown by Messrs. Osborn & Sons, Fulham, loosely and elegantly arranged. Camellias, Rhododendrons, and Epacrises were freely used, lightened by several plants of Cocos Weddelliana. Here and there a plant of the pure white Guelder Rose and a few plants of the brilliantly coloured Anthurium Schertzerianum added to the general effect. Rhododendron multiflorum was flowering freely, and was seen to the best advantage as associated with the bright Imantophyllum miniatum. A silver Banksian medal was awarded.

Mr. John Roberts, gardener to Baron Rothschild, Gunnersbury Park, Acton, received a silver-gilt Banksian medal for a group of Orchids, chiefly Phalænopsis Schilleriana and Odontoglossum Alexandræ, intermixed with some excellent Amaryllises. The centre plant was Odontoglossum Andersonianum with two superb

spikes of creamy white flowers very delicately spotted. They were all in excellent condition.

Mr. Robert Parker, Tooting, exhibited a group of herbaceous plants including Iberis semperflorens, Megasea ligulata pulcherrima, Bulbocodium vernum, and the dark blue Scilla verna. Narcissus minor has small but very rich yellow flowers. Megasea ligulata rubra looked well, the colour being richer and brighter than the variety named above. Iris reticulata and Saxifraga oppositifolia pyrenaica were extremely fresh and pretty. A pot of the sweetly-scented hardy Aponogeton distachyum was shown in perfection. Aubrietia deltoidea aurea has pale lilac flowers and yellow foliage, rather delicate. A well-flowered specimen of Dendrobium superbum giganteum was shown, also Imantophyllum miniatum superbum, a very fine form with rich scarlet flowers.

Mr. R. Dean, Ealing, exhibited a very attractive collection of spring flowers, including various Primroses, Scillas, and Pansies, and some admirably grown plants of Primula denticulata purpurea—a valuable plant for spring decoration, the dense globular heads of rosy-purple flowers being borne on stout stems a foot in height. A silver medal was awarded.

From Mr. T. S. Ware, Tottenham, came a collection of Primulas, including some very excellent varieties. P. rosea has drooping, bright pink, neatly formed flowers, dwarf and pretty. It received a first-class certificate. A number of P. denticulata (the Kashmir variety) were shown with fine heads of pale lilac or mauve flowers, also P. denticulata alba and purpurea, the latter with enormous umbels of pale purple flowers.

A vote of thanks was awarded to G. F. Wilson, Esq., F.R.S., Weybridge, for a fine plant of Primula concolor, and a cut spike of a seedling variety of the same species, with a much larger and more compact umbel—a variety of great promise.

To Messrs. W. Paul & Son, Waltham Cross, was awarded a Silver Banksian medal for a collection of cut Camellia blooms. Twenty boxes were staged, containing upwards of four hundred flowers. The blooms were in excellent condition, and included some fine varieties. The following are the best: Marie Nicolais, a neatly formed red; Aulica, delicate blush white of fine form; Eugène Massina, a faint pink; Marchioness of Exeter, very large and rather loose, good red; Ninfa Egeria, an excellent white; Cup of Beauty, extremely large and finely imbricated; L'Avenir, a bright rose pink, excellent flower; Rafia, good red; Princess Charlotte, white; Baron de Viere, pink and white streaked, fine flower; Etoile Polaire, small with bright red stripes. A silver Banksian medal was awarded for this beautiful collection.

First-class certificates were awarded to Mr. Hovey, Boston, Massachusetts, for Camellias Mrs. Hovey, pale pink, small, imbricated, and very chaste; and Mr. Hovey, crimson, also small, distinct and rich.

Amongst the Camellias exhibited by Messrs. Cutbush & Sons, Il Cygno, Cup of Beauty, and Alba plena, were fine amongst the whites; and Rubens, red marbled with white; Saccoi nova, rose; Storyi, red; Leeana superba, scarlet; Mathotiana, crimson; and Bonomiana, striped, were of great excellence.

Messrs. Veitch & Sons were awarded a first-class certificate for a grand new Amaryllis, Mrs. Baker. The plant had four flowers, and is referred to in another column. It is decidedly one of the finest varieties that has yet been raised. The same firm also exhibited the beautiful Rhododendron Veitchianum. Messrs. Veitch had also first-class certificates for the following Hyacinths—Leviathan, flesh tinted with pink, excellent bells and fine spike. The Sultan, very dark; centre of the segments almost black, margins dark blue; bells good; spike very broad and massive. Salmon King, segments very broad; bells good; spike tall and compact. King of the Reds, tall close spike, very glowing colour; the richest in its class.

Mr. B. S. Williams received a first-class certificate for Azalea Duke of Connaught. The plant is very floriferous; the flower of moderate size, neatly formed, and of a rich crimson colour, the foliage being rather small and dark green. This is an admirable variety, and well deserves the recognition it received.

A first-class certificate was awarded to Mr. Melville for Galanthus nivalis Melvillii, a Snowdrop with very large foliage, flowers, and bulbs; pure and effective.

A first-class certificate was awarded to Mr. C. Turner, Slough, for Hybrid Tea Rose Alexandre Bernaix (Guillot fils). This is a Rose of great promise, the foliage being excellent and the blooms large and well formed. The colour is pure rose, the centre deepening to pink, slightly cupped in form, and having stout shell-like petals; bears a general resemblance to La France, but is darker and abundantly distinct from that fine variety. The same exhibitor sent a fine basket of the bright forcing Carnation A. Alagatière.

Mr. Cannell staged as usual a grand collection of cut blooms of Zonal Pelargoniums. Magnificent was Kleon; and very fine were Lady Sheffield, Lizzie Brooks, Dr. Denny, H. Jacoby, while the soft yet glowing Salmon Vesuvius was in great profusion. The boxes were surfaced with the fresh green Nertera depressa—a hint that exhibitors of Hyacinths might well take a note of, as its appearance was much more pleasing than the brown moss that was employed in some of the collections.

Mr. H. B. Smith, Ealing, exhibited an extensive and magnificent bank of Cyclamens, similar to the collection staged at the last meeting and then described. A large gold Banksian medal was awarded. Mr. C. Edmonds, Hayes Nursery, also exhibited a very good collection, and was awarded a silver-gilt medal. A first-class certificate was awarded to Mr. Smith for Cyclamen Queen of the Belgians; plant dwarf and very floriferous; flowers very large, of admirable form, and pure white. J. J. Wheble, Esq., Bulmershe Court, Reading, exhibited a flowering plant of Billbergia Morelliana, which is described by the exhibitor as valuable for room decoration, as the colours show to great advantage under artificial light. Mr. Aldous, Gloucester Road, Kensington, exhibited an attractive group of decorative plants, also a tastefully arranged dinner-table furnished with flowers and fruit. It was remarkable for its chaste and quiet appearance, nearly all the flowers employed being white. Messrs. Green & Co., Victoria Street, S.W., exhibited very fine bouquets, composed chiefly of white Camellias, Orchids, Roses, Stephanotis, and Lilies, relieved by Maidenhair Ferns.

Mr. Thomson exhibited a fasciated growth from the Crystal Palace of Ruscus androgynus, and was awarded a vote of thanks. Plants from several other exhibitors were staged, but they were passed by the Committee.

The Fruit Committee presided over by Mr. John Lee had scarcely any duties to perform, the only collection of fruit exhibited being fifty varieties of Apples from Mr. Lewis Killick in sound and excellent condition.

INODOROUS LIQUID MANURES.

However excellent the various kinds of liquid manures are as made by gardeners, yet there are many amateurs, and lady cultivators in particular, who desire to have fertilisers that they can employ with advantage to their plants and which at the same time are not offensive during their application.

One of the best fertilisers for ordinary purposes may be obtained by mixing bone dust with soft water, and then allowing the liquid to stand until the undissolved particles have settled to the bottom of the vessel. The strength of this mixture may be increased by adding a teacupful of guano to a pail of water, and this is sufficiently powerful for most plants except those of vigorous growth, such as Fuchsias and Chrysanthemums. Sulphate of ammonia may be used for the same purpose, but only in small quantities—viz., about a quarter of an ounce to a gallon of rain water.

Stove plants have received great benefit from an application of liquid manure, consisting of six quarts of soot to a hogshead of water. This has also proved very nourishing to Pines, Vines, Peaches, and to many plants. The soot should be secured in a piece of coarse canvas and suspended in the water. The soot water when applied in a clear state is not offensive. Amateurs will find Standen's gardeners' mixture both clean and stimulating, and is even better in solution than if used as a powder. Ordinary liquid manure may be easily rendered inodorous by throwing in two or three handfuls of pulverised charcoal, and well mixing.

As regards the most suitable time for applying liquid manure, it should be remembered that if a plant be potted in suitable soil liquid manures are superfluous until the plant has filled the pot with roots, and then apply the manure frequently but always weak; it is better to err on the side of weakness than in the other direction. Where large blooms and compact growth are required it should not be applied until the flower buds appear, but where general luxuriance is the only object use stimulants freely, only observing the caution given above.—C. R. P.

ROYAL BOTANIC SOCIETY.

March 26th.

In consequence of the extreme inclemency of the weather the fixture for the first spring Show of the Society proved unfortunate for the attendance of visitors. The Exhibition was a very good one, and occupied the entire length of the corridor and a portion of the conservatory. Most of the classes were well filled, but there were no exhibitors in the classes for twelve bulbous plants, hardy Primulas, and Bouvardias. Messrs. Veitch's Hyacinths, and Mr. Bull's and Mr. B. S. Williams' groups contributed largely to the general appearance of the Exhibition.

In the open class for twelve stove and greenhouse plants the first prize was awarded to Mr. G. Wheeler, gardener to Louisa Lady Goldsmid, Regent's Park. This was the only collection staged, the plants being of medium size. In the amateurs' class for six greenhouse Azaleas Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, was first with Duc de Brabant, Reine des Roses, Constant Von Kursbilock, Rubens, Duc de Nassau, and Madame Ambroise Verschaffelt; large and well-flowered plants.

The second prize went to Mr. James, gardener to F. Watson, Esq., Isleworth; plants small but good. Third to Mr. Wheeler. In the corresponding nurserymen's class Messrs. W. Cutbush & Son were the only exhibitors, and received a second prize. The varieties included Reine des Belges, Roi Leopold, Madame Verschaffelt, Neptune, and Duc de Nassau, of medium size. In the class for six Chinese Primulas Mr. Wiggins was first, Mr. James second, and Mr. Wheeler third. In the nurserymen's class for six forced Roses Messrs. G. Paul & Son, Cheshunt, received first prize for Anna Alexieff, Madame Clemence Joigneaux, Duke of Edinburgh, La France, Princess Mary of Cambridge, and John Keynes. They were also awarded an extra prize for a group of about thirty Roses. In the open class for six Deutzias Mr. James Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was awarded first prize for magnificent plants 3 or 4 feet in height and 3 feet through. Mr. James was second with smaller but densely flowered plants. In the open class for twelve Cyclamens Mr. H. B. Smith, Ealing Dean Nursery, was first. The plants were finely flowered, very even, and fresh. The second prize went to Mr. James. In the corresponding class for amateurs Mr. James was first with good plants, and Mr. Wiggins second. In the open class for six pots of Lily of the Valley Mr. Douglas received first prize, an extra prize being awarded to Messrs. W. Cutbush and Sons for six pans.

For twelve pots of Tulips, four kinds, three in a pot (amateurs), Mr. Douglas secured the first position with Proserpine, Keyzerskroon, and Vermillon Brillante. Mr. Moorman was a very good second with nearly the same varieties. Third, Mr. Weir.

In the class for nurserymen Messrs. Cutbush were first with white Joost Van Vondel, Fabiola, Proserpine, and Vermillon Brillante. Mr. S. Hill was second.

In the open class for twelve pots of Narcissuses Mr. Douglas secured the first prize with Gloriosa, Queen of the Netherlands, Grande Soleil d'Or, and Grand Monarque, very even and good. Mr. S. Hill was second, and Messrs. Cutbush third.

In the amateurs' class for twelve Hyacinths Mr. Douglas was first with Von Schiller, King of the Blues, Vuurbaak, Marie, Koh-i-noor, Grand Lilas, Grandeur à Merveille, De Candolle, Macaulay, La Grandeur, Solfaterre, and Gigantea, massive and fresh spikes. Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston, was again a close second; and equal thirds went to Percy F. Sutton, Esq., Gilbert House, Kingston, and Mr. James Weir, gardener to Mrs. Hodgson, The Elms, Hampstead.

In the nurserymen's class Messrs. Osborn & Sons, Fulham, were first; Mr. S. Hill, 16, Alfred Street, Bow, second; and Messrs. W. Cutbush & Sons third.

In the open class for twelve pots of Crocuses only one small collection was staged. In the class for six Amaryllises Mr. J. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, was first with fine well-flowered plants of Orpheus, Oriflamme, Firebrand, Burtonii, Invincible, and Grand Conquerant. Mr. Douglas was awarded the third prize.

Extra prizes were awarded to Mr. James for a collection of Cinerarias; to Mr. H. P. Smith for an extensive collection of Cyclamens; to Messrs. James Carter & Co. for a collection of Hyacinths and Deutzias; to Mr. W. Bull for a group of Palms, Orchids, &c.; to Messrs. Osborn & Sons for a collection of Hyacinths and group of plants; to Messrs. Veitch for a splendid collection of three hundred Hyacinths; to Mr. B. S. Williams for a group of plants; to Messrs. Cutbush for thirteen baskets of Epacrises, including the following varieties: Lady Alice Peel, The Bride, Ardentissima, Racemosa, Model, Fireball, Carnea, Hyacinthiflora, Fulgens, Candidissima, Newtonii, Waltonii magnifica, and Odorata alba; to Messrs. W. Paul for twenty boxes of cut Camellia blooms (the most attractive varieties are detailed in another column); and to Mr. Boller for a collection of succulent plants.

Botanical certificates of merit were awarded to Mr. W. Bull for Epacris onosmæflora flore-pleno nivalis; Davidsonia pruriens, an Aralia-looking plant with large spreading leaves and the young growths reddish-brown; Adiantum bellum, a dwarf-growing and compact Maidenhair, with fronds from 6 to 8 inches high, not unlike A. Capillus-Veneris; Dendrobium Ainsworthii, Staphylea colchica, Lastrea aristata variegata, Encephalartos decorus, and Macrozamia Mackenziei. To Messrs. James Veitch & Son for Amaryllis Mrs. Baker, Syringa alba grandiflora, Epidendrum Wallisii, Croton Williamsii, Davallia Mariesii, and Asplenium neo-caledonicum; also for the following Hyacinths: Duke of Connaught, Royal Blue, Leviathan, King of the Reds, Duchess of Connaught, Duke of Norfolk, Salmon King, Prince Imperial, Lord Derby (red), and McMahon, most of which are described in another column. To Mr. B. S. Williams for Croton Williamsii, Calyptromoma Swartzii, Gleichenia dicarpa longipinnata, Croton albicans, and Pandanophyllum humile. To Messrs. Hugh Low and Co. for Cymbidium Lowianum. Certificates were also awarded to Mr. James, Redlees, Isleworth, for the following Cinerarias: Mr. Bland, flowers large, round, of good substance, colour dark plum, bright with a purple sheen; Earl of Beaconsfield, flowers large and fine, colour dark velvety puce; and Master Harold, flower of excellent form, colour very rich—a reddish-scarlet with pure white ring. To Mr. Smith, Ealing, for Cyclamen Duke of Connaught, an immense flower belonging to the rose-coloured section; and to Mr. Wiggins, gardener to H. Little, Esq., for Cyclamen The Gem, a model variety with white petals and rose-coloured throat.

Their Serene Highnesses the Duke and Duchess of Teck and other distinguished visitors attended the Exhibition.

NOTES AND GLEANINGS.

Messrs. Veitch's Royal Exotic Nursery, King's Road, Chelsea, was visited on the 19th inst. by H.R.H. the Princess of Wales and H.I.H. the Crown Princess of Germany, accompanied by His Excellency Count Münster, the German Ambassador, and the Countess Münster. They spent upwards of an hour in examining the flowers, of which their Royal Highnesses were fortunate in finding an unusually brilliant display. Orchids flowering in great profusion, such as the choice Angræcum citratum, Vanda cristata quaint and rare, Lælia Jonghiana, Cattleya exoniensis (out of season), Lycastes in great variety, including the pure waxy white L. Skinneri alba, Cymbidium eburneum, and an almost bewildering array of Dendrobiums, including Brymerianum with its striking gauze-like labellum; Wardianum, crassinode, and Devonianum in splendid condition; Findlayanum with its curiously knotted growths, lituiflorum, marmoratum, and many others. Roses, Clematises, Hyacinths, Lilacs, Epacrises, Cyclamens, Cinerarias, Carnations, Prunuses, the splendid Rhododendron Veitchianum, Camellias a fine display, Amaryllises, combined in forming such a feast of flowers as is not often seen even in this renowned nursery. Amongst the Amaryllises a new seedling just opened, Mrs. Baker, attracted especial notice. The flowers exceed 8 inches in diameter, are of perfect form and glowing colour—flame scarlet suffused with crimson, with a few faint stripes of white. It is a remarkable flower, and one of the finest varieties yet raised.

—— We have received the first annual balance sheet of the Sheffield and Hallamshire Gardeners' Mutual Improvement Society, and are glad to observe that the Society is in a thriving and satisfactory state. It was established on January 3rd, 1878, by the united efforts of about twenty gardeners; it now numbers nearly seventy members, and the funds show a balance in favour of the Society of £9 10*s.* 7½*d.* Support has been rendered to the Society by various gentlemen in the neighbourhood; valuable aid has been given by Messrs. Fisher, Holmes, & Co. A Society of this nature is highly worthy of the support of the affluent, as it tends directly to improve the members and to increase the value of their services as gardeners. Papers are read periodically at the Society's meetings, and useful discussions follow thereon. The Chrysanthemum Show of last year, the first held in Sheffield, was established by the Society; and another Show of the same nature will be held in the Cutlers' Hall on November 24th, when it is proposed to offer a good prize for twenty-four cut blooms, incurved, to induce growers from a distance to compete in that class. Mr. W. K. Woodcock, gardener to F. T. Mappin, Esq., Thornbury, Sheffield, is the Secretary of the Society. A Society of the same nature has recently been formed at Ealing, and which promises to be very successful.

—— The International Committee of the London International Horticultural Exhibition of 1880 held a meeting on the 18th inst., Sir Daniel Cooper, Bart., in the chair, at which it was unanimously agreed that it is not expedient to go on at present with the proposed Exhibition.

—— We regret to hear that the old-established firm of Bunyard & Sons of Maidstone and Ashford have been obliged to go into liquidation owing to some transactions of another member of the family. We believe that the firm, which has more than doubled its business during the last seven years, will be able to satisfy all demands, and we hope that it may still be able to continue its long-established business.

—— As an inevitable result of the severe and prolonged winter Vegetables in London are extremely scarce and dear. Kale and green stuff generally is most uninviting in appearance; and produce, about half of which is waste, sells readily at 2*d.* per lb. Roots crops such as Turnips, Carrots, and Parsnips have also risen in price considerably; but Potatoes fortunately appear plentiful and can be procured at moderate rates. Judging by the supply at the greengrocers, the Kales which have resisted the severity of the weather the most successfully are the old Purple-topped and Cottager's. The last-named is a vegetable of great value, being productive,

very hardy, and of excellent quality. Swede tops, however, are just coming in, and sell readily at 1½*d.* per lb.

—— In no department of the garden is greater inconvenience being experienced at the present time than in the Herb Grounds. Such indispensable herbs as Thyme, Marjoram, and Sage are in many places killed, and Parsley is regarded as a luxury. In many places it cannot be purchased at all, and in London good samples sell readily at from 10*s.* to 12*s.* per lb. If country cooks could understand gardeners' difficulties they would refrain from entering what it is impossible to produce—the usual bunch of Parsley in each day's list of vegetables required. Those are fortunate who have a supply of Parsley in pots, or who have the means of protecting the beds with glass and other supplementary coverings.

—— It is many years since gardeners have experienced so much trouble in ripening Grapes in March as during the present season. In three gardens that we have just visited, and where the gardeners are skilful Grape-growers, the first crops just ripening on Vines in pots are comparative failures, and we have heard of many other similar instances. In Mr. Baring's garden at Coombe Cottage, where all departments are so admirably managed by Mr. Baker, the second house of Vines (in pots) contains a remarkably fine crop of well-filled bunches just commencing colouring, while the first house adjoining, and in which the Grapes are about ripe, the crop is of a very different character. In this case, with Vines equally good and under the same careful attention and sound culture, the season has exhibited its effects in the most striking manner. A great difficulty that is being experienced in the management of very early Vines is to prevent the foliage scorching during occasional bright days after this long period of growth, aided wholly by fire heat and a corresponding absence of sun. Vines cannot be watched too closely during any unusually bright mornings that may follow the present dull days. We have already seen several examples of scorched foliage, and in our desire to aid in the avoidance of further injury that is imminent we again allude to this subject as one of considerable importance.

—— The mild weather of the early part of last week, the bright frostless nights and almost balmy days, led southerners at least to believe that spring was at length approaching. The genial days, however, that came suddenly departed abruptly, and cold easterly winds with sleet have succeeded to check the advancing vegetation. The opening of the present week was marked by winds of the most piercing character, which imparted to gardens a black dismal appearance, and such crops as Cauliflowers, Peas, &c., are suffering greatly under the withering influence of the icy blast. Forcing is a work of extreme difficulty, it being almost impossible to maintain the requisite amount of heat in dung frames, and not easy to do so in many hot-water-heated structures.

—— "At Lisbon," says Lady Jackson, "in Fair Lusitania the Passeio Publico Garden is one of the most beautiful though not extensive. Shrubs and plants flourish profusely; the Geraniums cover a large space, are from 20 to 30 feet high, with stems as thick as those of small trees, and flowers mostly bright crimson, and all double."

—— As an instance of the penetrating power of frost in close firm ground we are informed on good authority that in the streets of Lincoln where sewage works are in progress, that the late frost reached 27 inches below the surface of the road. Although the frost was not exceptionally severe it was continuous, and was found to penetrate a little more than an inch every night during the time the weather was severe. In firm but more sandy ground the frost had descended much deeper, and large water pipes placed 2 feet below the surface were frozen for three weeks. It is the cumulative amount of frost that is destructive rather than a few nights of great severity; thus the figures submitted by Mr. D. Thomson and a Cumberland correspondent become interesting as affording evidence of the real severity of the winter.

—— After leaving the Meeting of the Floral Committee of the Royal Horticultural Society on Tuesday last, His Majesty the King of the Belgians honoured Mr. John Wills by visiting his establishment at Onslow Crescent.

—— The Floral Decorations at Windsor Castle on the occasion of the marriage of H.R.H. the Duke of Connaught were on an extensive scale, and were most tastefully arranged by Mr. Jones the head gardener. By special permission Messrs. Veitch & Sons had the honour of presenting the bridal bouquet, and Her Majesty and the Crown Princess of Germany accepted bouquets from the same firm.

—— The superb collection of Primulas at Messrs. Carters' establishment at Perry Hill, Sydenham, although past the height of their beauty, have still sufficient charms remaining to enable their excellence being appreciated. The named varieties include P. carminata albo-punctata, a good flower, round in outline, margin neatly cut, foliage finely divided, umbels small. Carter's Dark Carmine, rich, flower well formed, yellowish eye. Brown's Exquisite, rich crimson flowers, and large foliage. Florence is a deep bright pink, remarkably large umbel. Rosea Floribunda resembles the last. Fimbriata marginata, pinkish mauve with magnificent umbels; very good. Fimbriata Alexandra, white with a large yellow eye; margin finely cut; foliage small. Fimbriata Grand Duchess, pink, flowers large and faintly spotted. Perfection, pure white, with superb flowers and umbels; foliage also good. Blush White, faintly tinged with pink; petioles and under side of leaves dark, showing up the blooms to the best advantage. Several beautiful varieties are unnamed, among which we may mention a small and exquisitely neat white, a fine double carmine, a double purple, and a good double rose; a rich crimson, a fern-leaved variety with fine white flowers; and last but not least one which approaches nearer to a pale blue than any we have seen, bearing a profusion of flowers in good-sized umbels; very distinct and attractive. Some magnificent specimens of Spiræa palmata and S. japonica will shortly be in full beauty; the former are of extraordinary size and merit.

—— Several hardy plants in Messrs. Osborns' Nursery at Fulham are now looking extremely fresh and pleasing amidst the general desolation which still prevails outside. Hepatica triloba alba and cærulea plena have an abundance of flowers. The general favourite Iris reticulata is also very attractive. The white-flowered variety of Erythronium Dens-canis is good, its small blooms contrasting pleasantly with the darkly-spotted foliage. Galanthus plicatus has flowers of fine substance and pure white. A bed of Scilla bifolia and S. sibirica is bright with charming blue flowers. Amongst the plants requiring the protection of a frame during severe weather few surpass Iris persica; the inside of the petaloid styles is coloured a very pale blue, the tips of the sepals have each a blotch of rich purple and a ridge of yellow extending downwards to the base. Primula denticulata is also good, but P. marginata is a gem with purplish lilac flowers and serrated leaves edged with white.

—— Flowering in the same nursery and worthy of a special note is Cornus mascula variegata. It is one of the very few hardy shrubs that present an attractive appearance at this season of the year. It is now covered with small bright yellow flowers, which render it equally conspicuous and pretty. If to this recommendation be added the fact that the foliage is both elegant and finely variegated during the summer months, it is certainly entitled to a place in every shrubbery.

—— Rhododendron Prince Camille de Rohan is an excellent variety for pot culture, as its habit is dwarf and flowers abundant. The heads of bloom are small and compact, the individual flowers being white suffused with pink, having the upper segment of the corolla delicately mottled with rosy red. It is now flowering in the greenhouse at the Royal Gardens, Kew.

FERTILISATION OF GRAPES.

Having often failed in cold houses to set well the bunches of Lady Downe's and Muscat of Alexandria Grapes, last year I tried to set them by using the pollen of Hamburghs, Alicantes, and Gros Colman. In doing so I used a rabbit's tail tied on the point of a stick like a penhandle. Every bunch of Muscat and Lady Downe's rubbed by the rabbit's tail containing the pollen of the other sorts set to a berry. So successful was the experiment that I shall never again fear having a ragged bunch or a bad set one in my vineries. This is mentioned now with a view to confirm a statement made in a recent number of this Journal.

Some writer (probably Darwin) has said the pistil and stamens of some plants do not come to ripeness or the fertilisation point at the same time, and that when the flowers of such plants are fertilised it is by the pollen carried by either wind or bees from other plants. It is known, too, that the pollen of separate plants of the same kind takes better and

produces more or better seed than does the pollen of flowers bearing the seed. Crossing, then, appears to be a helpful law of Nature in the vegetable kingdom.—A. PETTIGREW.

A DAY AMONGST HYACINTHS.

WHAT Geraniums are in summer and Chrysanthemums in autumn, Hyacinths are in spring — namely, indispensable. These delicately perfumed and charming flowers are each year becoming more popular and more extensively cultivated. Nowhere can better examples of Hyacinth culture be found than in those London nurseries where attention is given to them, and nowhere can better instruction be gathered of the relative merits of the several varieties than those nurseries afford. In visiting those collections it is observable that only a comparatively limited number of varieties are grown for the purpose of producing an imposing display, or at least those which experience has proved as being the best are grown in the greatest number — the best test of the worth of the varieties. The first collection visited was that of—

MESSRS. VEITCH & SONS.

The plants are grown in the Coombe Wood nursery of the firm; and the massive spikes and general finish of the flowers prove how much can be done, when, as is unquestionably the case there, good bulbs are combined with good culture. A greater number than usual of new varieties have been sent from Holland this year. Several of these have little to recommend them. The Dutch cultivators appear to attach considerable importance to novelty of colour, and hence several varieties have been described by them as possessing special merit, but which, owing to certain deficiencies, such as thin flowers or small spikes, are not likely to find favour with English growers. All such varieties are eliminated by Messrs. Veitch, only a few of the more promising being retained. Some of these are very good, and are likely to become established as standard varieties. A few of the best are the following: King of the Reds, bright reddish scarlet, very glowing, tall close spike; a variety of great merit. Royal Blue, large, elegant, reflexed bells; colour dark blue with a pale band and white eye; distinct and very promising. Duke of Connaught, dark rich blue; close handsome spike; good. Duchess of Connaught, bright clear pale blue; fine bells and spike. Salmon King, rosy salmon bells, fine and of good substance; close symmetrical spike. Prince Imperial, dark blue; very tall and stately spike. Galatea, flesh colour, with delicate violet bar down each segment; good spike. Delicatissima, very tall grower; large massive bells; flesh colour tinted with rose. Loveliness, pale pink; colour very chaste and pleasing; compact spike. Lord Dufferin, dark blue; white eye; fine bells and spike. Lord Beaconsfield, very pale blue; large broad segments; fine bells and good spike. The Bride, double, pure white, individual flowers of perfect form; tall thin spike; distinct and chaste. Lord Lytton, bright blue; very fine bells and spike. MacMahon, yellow, very tall, bright and full; good. Pauline Lucca, bright blue; fine tall spike. Pottgieter, pale blue; fine bells; tall spike; good. Delicata, pale red suffused with salmon; bronzy tube. Catherine Hermine, very pure white; fine spike and bells. Trocadéro, deep bright, very dense spike; attractive. Marguerite, cream colour; good spike and bells. Canary Bird, deep yellow; very fine spike and good foliage; the best in its class. Lord Derby, straw colour; fine reflexed bells; good. Hector, dark rich blue; very compact. Frans Hals, double deep blue; very dense, dwarf spike; attractive. Leviathan, silvery rose; fine spike; promising. Ainsworth, dark blue occasionally splashed with pure white; novel and good. Kenan Hassellar, yellow, good colour; fine bells with broad segments; good. Romeo, deep red; dwarf, early, and attractive. The following are also of recent introduction and good: Duke of Norfolk, dark blue, fine spike; semi-double. Sultan, fine dark single blue, broad massive spike. The Shah, mauve and tricolor, light blue with fine bells.

Of varieties of established merit the following are exceedingly fine: Whites—La Grandesse, Madame Van der Hoop, La Franchise, Alba Maxima, Snowball, Mont Blanc, and L'Innocence. Reds—Vuurbaak, Albert Victor, Macaulay, Linnæus, General Pellissier, Garibaldi, Von Schiller, Koh-i-noor, and Garibaldi. Blues—Czar Peter, Princess Marie of Cambridge, Blondin, King of the Blues, Marie, Charles Dickens, General Havelock, and Masterpiece; the last named nearly black and very symmetrical. Noteworthy amongst the yellows are Obelisque and Bird of Paradise. Many other varieties are in splendid condition, but those named, as Mr. Hills, Messrs. Veitch's skilled grower, observes, "always come good." When such a collection as the one referred to is placed before the public, there is no wonder that Hyacinths are so widely popular and so largely cultivated in this flower-loving country.

MESSRS. CUTBUSH & SONS, HIGHGATE.

The Hyacinths grown at this nursery are, as usual, very good, and although the collection is not large it includes some of the finest varieties in cultivation. When arranged in the show house they will be seen to much better advantage than in the frames at present occupied by them, and as many are not yet fully perfected a week hence will probably find them in their prime. Amongst the single reds the most noteworthy are: Garibaldi, rich crimson, with a dense massive spike; General Pellissier, deep red, bells rather small but forming a fine truss. Lady Sale, purplish red with a light eye; spike good. Macaulay, rose with crimson stripes; a large and compact spike. Sultan's Favourite, rosy pink, with deeper stripes and large bells; very distinct and good. Von Schiller, salmon tinged with pink, fine bells. Single blues: Baron von Tuyll, a good dark; large bells with recurved segments. King of the Blues, the best dark blue; very massive spike. Lord Melville, dark with white eye. Marie, a good dark, with purplish tinge and darker stripes. Blondin, light blue shaded with dark, recurved segments, and immense spike. Czar Peter, light blue with large bells. Grand Lilas, delicate light blue, and excellent bells. Grand Master, light blue, large truss. Single whites: Grandeur à Merveille, creamy white with large bells; a beautiful variety. La Grandesse, pure white, good bells, and superb spike—the best white. La Neige, dense truss. La Franchise, a good creamy white. Lady Derby, pure white; bells large and pendulous. Snowball, pure white, with finely shaped bells and somewhat globular spike. Nectar, large bells. Single lilacs: De Candolle, pale with a tinge of red. President Lincoln, purplish lilac, with light eye and rather small bells. Lord Palmerston, mauve; good. A fine single blackish purple is Mimosa, with large and well-shaped bells and large spike. Single yellows: L'Or d'Australie, light yellow, excellent bells, and fine truss. Duc de Malakoff, yellow striped with lake, and substantial spike.

MESSRS. OSBORN & SONS, FULHAM.

Arranged in a small house is a superb collection of Hyacinths in good variety, excellently grown and flowered. In addition to many of the varieties described above we particularly remarked the following. Single Blues: Princess Mary of Cambridge, pale blue, segments with a darker tinge; a grand spike. Lothair, bright blue, finely formed bells and spike. Pieneman, good blue, striped with a darker shade; large bells. Lord Derby, clear blue, and magnificent truss. Argus, dark blue and white eye. Sir Henry Havelock, a good dark. Single Whites: Leviathan, creamy white; massive. King of the Netherlands, an excellent white. L'Innocence, pure white. Gigantea, pinkish white, large and dense spike. Lord Shaftesbury, good creamy white; enormous pendulous bells (new). Single Reds: Vuurbaak, rich; small bells and dense truss. Von Schiller, red tinged with pink and striped with darker shade; good spike. Emmeline, faint pink, handsome bells. Princess Helena, rosy pink; bells broad, and moderate truss. Linnæus, rich crimson, large spike. Solfaterre, orange red, bells and spike small. Prince Albert Victor, an excellent crimson. Single Yellows: Grand Duc de Luxembourg, primrose; truss very large and good. Bird of Paradise, very clear yellow; bells small, but spike large and attractive. King of the Yellows, pale yellow, bells well formed, dwarf and compact spike (new). Single Lilacs: Haydn, mauve; magnificent truss. Lord Havelock, rich maroon. Charles Dickens, lilac, bells small, compact truss; dwarf. Good doubles are rather scarce, but we may note Princess Louise, a good double red; Garrick, double blue, with bright stripes and large bells; Lord Wellington, creamy white, magnificent truss.

MESSRS. CARTERS, PERRY HILL.

The collection of Hyacinths at this nursery includes most of those already described, and they are now looking remarkably well, their appearance bearing evidence to the careful cultivation bestowed upon them.

Madame Van der Hoop is a wax-like single white with large bells and a fair spike. La Joyeuse is a creamy white, bells moderate. Masterpiece, an extremely dark blue with a com-

pact truss. Lord Byron, a fine single light blue. La Précieuse, pale lilac delicately shaded, good close spike. Noble par Mérite, excellent double rose pink; bells and truss large. Groot Voorst, a double blush white: bells large; rather loose spike. Vainqueur, good double white. Mont Blanc, attractive, single white, with a massive spike. The following excellent varieties we have previously mentioned—viz., Czar Peter, Grand Lilas, Vuurbaak, Lord Derby, Haydn, Von Schiller, Pieneman, Lord Macaulay, King of the Blues, De Candolle, and Grand Duc de Luxembourg.

ROSES—NUMBERS VERSUS NAMES.

YOUR correspondent "MANCHESTER" has drawn attention at page 150 to the advantage of numbers *versus* names for Roses. I adopted the mode some years since, and still find it far preferable to naming them, and I am convinced there are many advantages attending the system. It is a decided help towards a knowledge of the different varieties forming a collection, as it induces a closer observation of the growth and habit of the Rose, so that after a little time the grower is able even in midwinter to name most of his Roses from the bare wood and habit of the plant. With the names attached to them I was a more careless observer, because when the flower presented itself I merely looked at the label for its name, and seldom thought of studying the character of the plant. However, it was quite different with numbers; for when not certain of the name of the variety, and before referring to the book, the habit of growth, the wood, and spines were all noted to enable me with the aid of the number to ascertain the name of the Rose; therefore it is advisable for those who are desirous of naming Roses at sight to number their plants in as simple a manner as possible. In addition to the advantages given by your correspondent "MANCHESTER," Rose trees can be more quickly numbered than named, and small labels with numbers look much neater than those of a size needed to contain some of the extremely long names given to the French Roses during the last few years.—OXONIAN.

SOIL DIFFICULTIES.

A CRITIQUE by Mr. Taylor is always welcome, because there is quite certain to be something original about it, some hint of value, some good reason clearly set forth for objections raised to what has been written. In the matter of drains I quite agree with him in thinking that a lesser distance than 30 feet apart is advantageous in a heavy clay. Very little diversity of opinion appears to exist between us as to the depth, 6 inches more or less being comparatively unimportant.

My own experience of land drainage has been extensive and varied. I have tried drains in a heavy retentive subsoil, the particles of which are so finely divided that it settles into a hard mass almost impervious to moisture, the process of capillary attraction being very slow, and with a little working forms such an excellent puddle for pond drains that I have used it with perfect success for nearly a dozen ponds. In this subsoil drains have been made at 2, 3, and 4 feet from the surface, and the results prove that for land constantly under cultivation as a kitchen garden deep drains are the best. It was to such land I alluded, and 4 feet was given not so much as the only right depth, but as that which experience had shown to be the best for soils generally. In making drains for a kitchen garden it should never be forgotten that the soil will be broken up deeply and rendered so porous that superfluous moisture will pass through it so quickly that the drains will cease to flow strongly a few hours after the heaviest rains. It is to secure this desirable result that I have so persistently advocated the importance of the mechanical division of soil by the introduction into it of gritty matter. Only let this be done well and difficulties about digging will cease to exist.

Soil that can only be "pulled about" under certain conditions is not in the state that kitchen garden soil ought to be; and when a man tells me that his soil is cold, wet, or heavy—so cold and wet that his crops suffer much from untimely frost—so heavy that it must not be "pulled about" in autumn or winter when there is leisure for doing it, but must be left till March when there is a pressure of work in every department, I can accord him no sympathy, but I am bound to point to what drains, trenching, manure, and coal ashes have done for me. Some eight years ago I had a soil so crude and apparently so heavy that if touched in wet weather the clods became so hard that they had to be watered, broken with Canterbury hoes, rolled and stirred repeatedly, so that the preparation for cropping was often a serious business, absorbing an amount of time and labour that I hardly knew how to afford. Yet now that soil is so ameliorated as to crumble at a touch, and may be stirred or thrown about at any time, and fully illustrates my ideal of a light rich soil. Its improvement has been a labour of years, but I am well content to have laboured for so good an end.

To Mr. Taylor's dictum that lime ought never to be used with stable manure I cannot assent. What is the action of lime upon manure? It hastens the decomposition of those substances containing nitrogen, and ammonia is produced, but it tends also to drive off this valuable fertiliser into the air and it is lost. A knowledge of this important fact leads me never to mix lime alone with a heap of manure—a very different thing to mixing it with a heap of soil with some dung and coal ashes, for then its action upon the manure instead of proving mischievous and wasteful is beneficial, the ammonia instead of passing away into space being absorbed and retained by the soil, which always predominates largely in such a mixture. For the same reason lime may be advantageously dug-in with manure in spring and summer, to promote that speedy decomposition and spread of fertility which is so desirable for crops of only a brief duration.

One word of caution concerning the application of lime as a simple dressing, or to mix with a soil heap. Always use it with moderation, for if used in excess it is the reverse of beneficial, setting free and wasting the ammonia of the soil itself. A peck to a square perch of land, or forty bushels to an acre, is a safe dressing for a thin soil, and from ten to twenty bushels more may be used for deep heavy soils.—EDWARD LUCKHURST.

PROTECTING YOUNG CABBAGE AND CAULIFLOWER PLANTS.

IN gardens where snails are plentiful hundreds of young Cabbage, Cauliflower, and other plants of this kind are often destroyed about this time of the year by the snails. This is often a serious loss, and some permanent mode of protecting the plants is advisable. The best plan for the purpose which we have seen was at Drumlanrig many years ago. Some hundreds of 8-inch pots without bottoms were kept in stock, and when a fresh plantation of greens of any kind was made, one of these pots was placed over each plant. This was kept on until the plants were strong in the stem and the leaves well above the rim of the pot. As a successional lot was generally planted about this time, the pots were shifted on to the small plants. Besides keeping all snails out, this plan afforded excellent protection to the young plants early in spring or in severe weather, and on this account alone it is worthy of notice. Here we have no pots of the kind, but one of the carpenters lately made us a large number of round circles of thin ash wood 6 inches in diameter by 6 inches deep. These are placed over the young plants in the same way as the pots, and they answer the purpose admirably.—A KITCHEN GARDENER.

SPRING BEDDING.

THE severe winter has left its mark on most of our spring-flowering plants, and judging by appearances we have but little chance for a long display of spring bedding unless the plants are allowed to remain in the beds much longer than is usual. Wherever this occurs the inevitable consequence is that the summer display is proportionally shortened. There is no work in the garden that we should feel so much reluctance in doing as turning out these spring flowers when in full bloom, considering that their beauty and brightness would be more effective than the summer occupants could be for several weeks. When spring flowers are removed the summer-bedding plants should be extra strong, so that the display may be maintained without intermission. Autumn-struck cuttings should be allowed more than the usual amount of pot room, and so treated as to ensure their making bushy plants. Spring-struck cuttings, which are often seen planted out from the cutting boxes, should be also potted off into 60-size pots or larger according to strength. Those plants raised from seed, such as Lobelias, Pyrethrums, &c., should be allowed sufficient room when pricked out, that they may be lifted with good roots. Have all well hardened off, so that they receive no check whatever when planting time arrives. With the above treatment healthy stout plants will be obtained; and by giving them a good watering previously to

planting they will not suffer in the least, but will soon fill up the spaces they are intended to occupy.—J. LLOYD JONES, *The Mount, Congleton.*

RHODODENDRON VEITCHIANUM.

WHILE it is certainly desirable to give illustrations of new plants so as to afford an idea of their appearance, even if they cannot be obtained, it is unquestionably equally desirable to give the same prominence to plants that have long been known amongst us, and the merits of which are placed beyond controversy. Since the plant, a flower of which we have had engraved, was introduced from Moulmein nearly thirty years ago, many plants have been praised and forgotten, but this charmingly beautiful and chastely distinct Rhododendron more than sustains its fair fame as one of the finest conservatory plants in existence. The one flower, represented in its natural size, affords an idea of the beauty of a plant bearing

Fig. 33.—RHODODENDRON VEITCHIANUM.

nearly a hundred of such flowers produced in terminal heads of three to six, and supported by obovate coriaceous leaves 3 to 4 inches long. Such a plant has been flowering for some time in the nursery of Messrs. Veitch & Sons, and was also exhibited and attracted much attention at the meeting of the Royal Horticultural Society on Tuesday last. The flowers, which resemble huge flowers of Azaleas, are pure white, with the exception of a faint yellow blotch on the upper lobe of the corolla, and are enhanced in beauty by their waved or crisped margins, which impart to the flowers a singularly beautiful appearance. A large specimen of this Rhododendron would add to the beauty of the most imposing and richly furnished conservatory, and smaller plants flower with great freedom, so that those only who have small houses need deny themselves the pleasure of owning a plant so worthy of their attention. Plants now are plentiful, and are by no means difficult of culture. Experience has demonstrated to the introducers the stock on which this Rhododendron best succeeds, and the consequence is that plants even in 6-inch pots grow healthily and flower freely.

A warm greenhouse temperature is suitable for large specimens, but small plants may be grown on more quickly under moderately warm stove treatment. Rhododendron Veitchianum is one of those plants which when well grown cannot disappoint, and hence we direct attention to it at the present time. The engraving is of a flower produced by the fine specimen above referred to.

THE CULTIVATION OF MISTLETOE.—Nothing is easier than to cultivate this plant. Take the seed out of the berry, and smear it on the smooth part of the bark, and it will adhere

and grow. Where the radicle comes into contact with the bark the latter swells. No further change occurs till the next year, when the tiny plants rise on end, open their cotyledons, and emit a minute shoot. They grow the length of one internode annually, so that the age of a bough of Mistletoe is readily known.—MARTIN M. BULL, *Jersey*.

AN EXHIBITION GUIDE.

I DO not like to be identified with failure, but when success depends upon the will of others at times there is no choice. My attempt to secure an exhibitor's guide has been a failure. The grumblings and threatenings to exhibit no more that I heard during last season caused me to decide that during the winter months I would attempt to obtain some authorised expression of opinion that would tend to make such regretable scenes in future less frequent. To my surprise it appears, as a rule, that gardeners are satisfied with things as they are. Mr. Iggulden kindly gave us his opinion ; only one other gentleman has alluded to the subject, but his allusion was simply to dissent from Mr. Iggulden's opinion.

Personally I have no great feeling in the matter, and generally I accept rules previously known to be fair. I acknowledge to a great love for exhibitions, but what may be the position awarded to any particular fruit is of much greater import to many than to myself. Consistency was my more particular desire ; and I reiterate, At all exhibitions consistent decisions ought to be guaranteed. For fruit of the highest quality of every variety the points of a dish ought to be fixed, and the option of the judge ought only to be to add on exceptional circumstances and to diminish whenever necessary. When judged by such authorised code, if the points are found equal, then a preference of varieties previously decided upon the same as the points ought to decide. For it to be possible for one judge to decide because "he liked" Grapes best, and for another to decide because "he liked" Melons best is most unsatisfactory ; yet this and similar things are done at minor shows all over the kingdom, and not unfrequently at shows of high pretensions.—JOSEPH WITHERSPOON.

THE UPPER HOLLOWAY NURSERIES.

IT is impossible to visit Mr. B. S. Williams' famous nurseries at any period of the year without seeing something choice or attractive, and this occasion was certainly no exception to the rule.

Orchids, as usual, are in splendid condition, and we will briefly note some of the more prominent among them. A very fine specimen of Cypripedium villosum is in bloom with about thirty of its large yellowish brown flowers standing well up above the foliage ; C. Lowii is also flowering freely ; C. Dayanum has several very distinct blooms, with hirsute petals, and the large dorsal sepal striped with green. Dendrobium Wardianum and D. crassinode are very fine ; D. cambridgeanum, in a basket, has moderate-sized flowers, the labellum a bright yellow, rich brown in the throat ; D. densiflorum is grand, having two magnificent spikes ; D. Findlayanum has small flowers, the sepals and petals tinged with pale purple, the labellum yellow in the centre and a white margin. The elegant Dendrochilum glumaceum is bearing numerous graceful spikes. Cattleya Trianæ is in good form ; C. Warcewiczii delicata is superb, the sepals and petals are white, while the labellum has a faint tinge of lake. Cymbidium eburneum, creamy white, the labellum streaked with yellow, is extremely beautiful. Lycaste lanipes has curious greenish-white flowers, sepals and petals acute and incurved. Cœlogyne cristata is looking remarkably well with an abundance of white flowers. Facing the entrance to one of the Orchid houses are four magnificent specimens of Vanda suavis, V. tricolor insignis, V. tricolor superba, and V. tricolor formosa, and near to them V. tricolor planilabris, Odontoglossums Alexandræ, O. Pescatorei, O. cirrhosum, and O. gloriosum are in perfection. Masdevallia ignea superba is very richly coloured, and forms a pleasing contrast to M. tovarensis, which is pure white. Restrepia antennifera is a curious little Orchid with small flowers thickly spotted with chocolate.

Amongst miscellaneous plants we observed Abutilon Duc de Malakoff, a good flower reticulated with dark red veins, and large dark green foliage. Rhododendron McNabiana is a fine plant, the creamy white flowers are faintly tinged with pink, very large, and three or four in a head, sweetly scented ; R. multiflorum is equal to its name ; R. ciliatum candida has small white blooms and ovate leaves. A long shelf is gay with profusely flowering Cyclamens giganteum and giganteum rubrum. An excellent Tree Carnation is A. Alegatière, double, and brilliant scarlet. The rich maroon-coloured Azalea Flambeau is very attractive. Gloneria jasminiflora is a fine stove plant with pure white, tubular, fragrant flowers, and opposite dark green leaves. Toxicophlæa spectabilis, also white, is flowering freely and is strongly scented. Choisya ternata is a charming little greenhouse plant for pot culture ; the flowers are white, fragrant, and are borne two or three together on small spikes ; the leaves are ternate and bright green. Gompholobium polymorphum splendens is in magnificent condition. The beautiful Camellia fimbriata has numerous exquisite flowers. Amaryllis Firefly is very showy, its brilliant scarlet flowers being now in perfection. Tabernæmontana camassa is very beautiful with double pure white flowers, sweetly scented, and elliptical dark green opposite leaves ; a fine plant for the stove. Sarracenia flava maxima has several remarkably large flowers ; and S. rubra is also looking well. The new Primula kashmiriensis has globular umbels of rich mauve or lavender flowers, the foliage being covered with a fine sulphur-like farina.

FLOWER MISSIONS.

Now that the buds are at last beginning to timidly and tentatively put forth their growth, and that several sunny days have encouraged the Violets, flower missions are again beginning to warm into work. Ours is essentially a flower-loving country, and—we may be proud to recognise it—a compassionate age ; and amongst much that is now doing to soothe and ameliorate the condition of the sick and sorrowing and impoverished in our hospitals and workhouses, I know not anything more interesting in its way than the flower missions. The one that I am personally acquainted with is in Spitalfields—a huge old barn-like room filled with busy lady workers. One set opening baskets which keep coming in fresh from the country ; another tying on to each little bouquet a prettily illuminated Scripture text. By the tables, where all was ready, the ladies gathered whose day it was for such and such hospitals. They were waiting there with other baskets all ready to sally forth ; and all for love, and all under the active superintendence and supervision of Miss Macpherson.

I believe the mission is never dormant even in the depth of winter. Perhaps the poor country folks buried in the million-peopled city then need cheering most of all by a semblance of home. Flowers of Everlastings mixed with bits of Laurustinus and Holly with sprigs of dried moss are then in requisition and great acceptance. But the time that is now coming —Primrose-tide and Violet-tide—and the hampers that will soon now be pouring in from all round London, is the great sight ; and one when once seen to be taken part in. The recipients are very grateful. "We can't go into the country ourselves," said one, "but you bring the country to us." "The flower-ladies' day in the infirmary is never forgotten. Sometimes the glasses stand with water all ready, more often with the jealously-tended remains of the last bouquet. Pæonies, Dahlias, and China Asters are pronounced 'very handsome'—just the style of praise that they deserve ; while the sweet-scented flowers and leaves are highly prized. In the spring Primroses and Cowslips call forth many expressions of gratitude. Roses are perhaps the most prized of all the flowers."

That is the point I am coming to. It may be in the memory of readers of the "Rose Journal" that before the last National Rose Show an appeal was made for gifts of Roses. I had the pleasure of handing over a few to a messenger from Mildmay, and could have given more had I recognised him sooner. But in the great rush to get away at the close of a show recognition is very difficult. I incline to think that there are many exhibitors who, out of the wealth of spare blooms before the show, and out of their well-deserving boxes after it, would be inclined to give very liberally if they could easily and satisfactorily find recipients ; and I am sure that to tens of thousands in huge London, "one Rose, but one," as Mr. Tennyson sings, much more one exhibition bloom, would be "a thing of beauty" and a joy, if not quite "for ever," still even as much as that in memory.

I apprehend any one of the now actively employed London flower missions would gladly send an accredited agent to any one of the metropolitan Rose shows, if only a few exhibitors would make them a promise. Certainly in these we have an agency for carrying these exquisite gifts of the Almighty to

many quite as capable of appreciating them as ourselves, and otherwise hopelessly debarred from ever enjoying them. The support of flower missions seems largely increasing. Miss Macpherson's Report for 1878 (60, Commercial Street, London, E.) speaks of "hospital flower beds" now started in some gardens, with "beds of Wallflowers, Stocks, and Sweet Williams" specially for the mission, and the firm of Suttons at Reading with their usual philanthropy I believe now supply packets of flower seeds through the mission managers gratuitously to ladies who will undertake to raise and send up flowers.

"What can I do to help the sick and weary,
Shut in with pain and sorrow day by day;
Their life so lonely, suffering, and dreary,
How may I throw some brightness on their way?

"Thou canst not bear them to the sunny meadow,
Fair in its royal robe of gold and green;
Nor waft them the sweet breezes from the moorland,
Where many a flower is born to blush unseen.

"But thou canst give them the fair types of beauty
Our Father's hand has scattered far and wide,
And bind in one, the azure of the heavens,
The forest green, the Rose of eventide."—S. G. S.

—A. C.

SOWING PEAS FOR SUCCESSION.

DRYNESS at the root is a frequent cause of Peas fruiting prematurely, which always means a light crop. "AN ESSEX GARDENER" (page 191), gave a good recipe for overcoming this difficulty. "Ground heavily manured and deeply dug, and a mulching of short litter," this will secure a crop if anything will in dry seasons; but how many are, like myself, without "plenty" of manure to make the ground in condition to resist drought? The soil here is only 15 or 16 inches in depth in the kitchen garden lying upon red sandstone, a soil that should have plenty of manure, but it has a very moderate amount; and in order that the little I have shall be where it is most wanted I take out a trench as for Celery, wheel in the manure, and mix it with the best of the soil; the rest is thrown on each side, forming a slope to each trench thus—

So that the row of Peas has the benefit of whatever rain may fall; this, with a soaking of guano or some other liquid manure when the weather is very dry, has always enabled me to gather a dish of Peas from June to the end of October. I find that Champion of England, sown about the end of March, if left standing after the crop is gathered, will frequently start into growth again, flower and bear pods, thus helping the late varieties. I recommend those who have a chance to try Dr. Maclean as a late variety. I sowed a row last year and it resisted the mildew wonderfully, the Peas remaining good for use very late (last week in October), and they were equal in flavour to those gathered earlier.—ON THE SAND.

SOUTHPORT FLOWER SHOW.

THE second spring Show, which was a very good one, was held on the 20th and 21st inst. In noticing a few of the principal exhibits first may be mentioned the group of twenty plants, pairs of each, effectively arranged, of Deutzia gracilis, Cinerarias, Dielytra spectabilis, Primula sinensis, Hyacinths, Tulips, Cyclamens, and other popular spring-flowering plants. The competing stands in this class occupied considerable space, and were very beautiful. The first prize was won by J. Powell, Esq. (gardener Mr. G. Rockliffe); H. Williams, Esq., was second; G. Chamberlain, Esq., third. In the group of twelve Hyacinths G. Maples, Esq., was first (gardener, Mr. J. H. Coates). This stand contained some of the good old varieties, which shows that some of the main exhibition varieties of over a dozen years ago are still to be found in the front rank. Amongst such may be noted Charles Dickens, Baron Van Tuyll, Grandeur à Merveille, Alba superbissima, Lord Wellington, Gigantea, &c. The second prize was taken by G. Chamberlain, Esq. (Mr. J. Corcoran, gardener); and the third by H. Williams, Esq. (Mr. R. Leadbetter, gardener). In the smaller classes of Hyacinths were noted Victor Hugo, Alba Superbissima, Madame Hodson, Amy, Princess Charlotte, and Grandeur à Merveille.

For the best twenty pots of Tulips and Hyacinths G. Maples, Esq., was first with a good collection. For twelve pots of Tulips the same exhibitor again won the first position. Amongst his most beautiful varieties were Roi Pepin, Duchesse de Parma, Proserpine, White Pottebakker, and Vermillon Brillante. Silver Standard was also well exhibited, and there were some good heads of the Golden Tournesol, which is a very reliable and useful variety. Polyanthus and Narcissus were also well exhibited, fine pots being shown of Grand Monarch, Mont Blanc, Canary Bird, and others.

Cyclamens were well grown, and on one of the plants a flower stalk had developed, as if to form another plant where the flower should have been, leaves and flower buds appeared, as is sometimes observed in Pelargoniums. B. Nicholson, Esq., was first in this class with six very handsome plants. A large table of succulent plants was in the Exhibition, comprising only two collections, that from the Botanic Gardens Company and Mr. Davis, nurseryman, Southport, and first and second prizes were respectively awarded.

Primulas were good, Mrs. Winder and B. Nicholson, Esq., securing the prizes. For a specimen Palm Mr. Fish of the Botanic Gardens Company was first with a good Corypha australis. T. Powell, Esq., was second with a Cocos Weddelliana. For a specimen Azalea the first prize was awarded to S. Swire, Esq. For a specimen foliage plant the Botanic Gardens Company had the best—a magnificent plant of Phormium tenax variegatum. This is one of the best decorative plants that can be grown for large places, as it looks equally well both in winter and summer, and is easily cultivated. For two pans of Lily of the Valley not more than 12 inches across there were some very good examples staged, the best being shown by G. Maples, Esq., the next by Mrs. Bradley, and the third by J. Powell, Esq. For one pan S. Swire, Esq., was first. Some very good plants and sorts of Mignonette were shown, the best coming from Mrs. Winder, and the next from T. Powell, Esq.

For bouquets the contributions were of first-class quality, both as regards the material employed and the art displayed in the arrangement. Mr. J. Moseley, nurseryman, Southport, was placed first in both classes. Cut Camellias were a very chaste and beautiful feature in the Show, and seeing them in such exquisite order we are tempted to ask the question, Why have we not shows exclusively for the Camellia in the large populous centres, such as there is for the Chrysanthemum, the Rose, and other flowers? For twelve blooms in this section W. Bellhouse, Esq., was first; T. Powell, Esq., second; and S. Swire, Esq., third. Mrs. Cusson, Southport, who has previously shown magnificent collections of skeleton leaves and flowers, had on this occasion a very handsomely arranged table decoration, which was very highly commended by the Judges. In the evening the Show was illuminated by the electric light. Mr. Campbell, the Superintendent, deserves a meed of praise for bringing the Show to a successful issue.

LATE CHERRIES.

IN September, 1867, while staying at a country house in Ireland (Co. Galway), a dish of delicious Cherries was provided as dessert. Walking round the kitchen garden next morning I observed the tree which had yielded the Cherries trained to a wall and bearing an abundance of fruit. The fruit was medium-sized; colour, a clear pale red; texture, resembling the May Duke, but the flavour rather sweeter. I was much struck with the Cherries, and have not seen any like them since. I feel sure they were not Archduke, as some Scotch gardeners call Late Duke. That variety, if I remember rightly, is a larger and darker Cherry than the one I describe, neither does it ripen so late as the end of September. Can the Irish Cherry be a variety of the Ebenter Cherry mentioned on page 195 of the Journal, and which has tempted me to speak of the sort met with in Ireland?—A. M. B.

SMALL VERSUS LARGE BOILERS.

THE above subject will be interesting to many readers, and is one concerning which there exists a variety of opinions at the present time, when the heating of glass structures has reached a very high degree of excellence. Brick flues still exist in some old-established places, but together with small boilers they have been fast disappearing of late years. Too rapid strides have been made in this branch of horticulture to render a return to the small-boiler system advisable. Large boilers can be erected of various shapes and modes of construction, and it would be difficult to decide which is the best, as many of them do their work satisfactorily.

The principle of heating a number of houses with large boilers appears to be condemned by "A KITCHEN GARDENER," because failures occur if different circumstances are not taken into consideration. Are these improved systems of heating to be condemned because the requisite amount of forethought has not been exercised, and where mistakes have been made in the arrangement of the pipes or valves? If the pipes are properly laid, the boilers properly set, and as many good valves used as are necessary, ten or twenty houses can be efficiently heated. I have here two large boilers set side by side, "saddle and

tubular combined," the two being capable of heating 20,000 feet of 4-inch piping. We have 8000 feet attached to them, and one of the boilers will heat the whole satisfactorily. We seldom have the two working at the same time. Three houses and two heated pits are 200 yards distant from the boiler, and although this winter has been sufficient to test their merits, they have proved all that could be desired.

I can remember these houses being heated by several boilers which caused double the labour, besides the disadvantage of having chimneys smoking all over the place. Not the least important item connected with the use of large boilers is the fact that young men are not compelled to be up all night attending to them. During the sharp weather we have had lately the fires have been made up finally at ten o'clock.—W. BARDNEY.

MODES OF MUSHROOM CULTURE.

1. I HAVE one bed which was spawned on January 10th now doing well. The horses were receiving 5 lbs. of Carrots per day, and their manure was dried by fermentation. The Mushrooms are small, and had the material not been dry failure would have been certain. In addition to the Carrots, sulphur, nitrate of potash, resin, and ground ginger have been occasionally given. This is one mode of culture.

2. A friend wheels the fat manure wet to a shed, and when dry spawns, and gathers fine Mushrooms as the season permits.

3. I have frequently obtained Mushrooms first from a barrowful of fresh dung employed to make up the end of bed, and this year a friend placed a basketful of fresh dung in a corner, and gathered Mushrooms in a month.—C. PRINSEP.

EARLY PEAS.

EARLY PEAS, like other vegetables, will be rather late this season. With us William I., sown on a south border on the 2nd of February, first showed above the ground on the 8th of March; but probably those sown a fortnight later may be as early, the weather now being fine. Dickson's First and Best sown on a south border has entirely disappeared during the winter. Culverwell's Telegraph, as supplied by Messrs. Carter and Co., withstood all the severe weather without the slightest protection, and it is now as vigorous and healthy-looking as any Pea possibly could be under the most favourable circumstances. This fine Pea is as good early and late as it is in midseason. No one will think of sowing Peas after the 20th day of March under glass to bring them forward, but it will be found advantageous to treat the seed carefully in sowing to insure its quick and free germination. Should the weather prove unfavourable covering the seed with fine soil to the depth of an inch is one of the best modes to encourage the young growths.—A KITCHEN GARDENER.

WORK FOR THE WEEK.

HARDY FRUIT GARDEN.

THE severe weather has retarded the blossoming of such fruit trees as the Apricot, Peach, &c., to a later period than for many years, which is not to be regretted, as for the last three seasons the crops of fruit have been meagre through the injury done to the blossoms by frost. Although effective protection is necessary after the flowers expand it is not well to employ it until there is absolute necessity, as the longer the blossoming is retarded the less is the danger of its being injured; and our summers though short are generally sufficiently long to ripen such fruit as the Apricot, &c., even if the time of blossoming were a month later than it usually is, and which it certainly will be this season. Although we experience sharp frosts up to the middle or end of May it rarely happens that frosts occurring after the middle of April are sufficiently severe to injure the fruit crop, due regard being had to affording the needful protection, which should be employed when required for all descriptions of wall fruit trees after the blooms expand, and be continued until the trees are furnished with foliage for the protection of the fruit.

The planting of fruit trees should be brought to a close as soon as possible, securing them to stakes or walls—in the latter case loosely, mulching over the roots with short litter. Any trees that were planted in autumn and are swelling the buds should, if they require it, be headed back so as to originate shoots at the required places for the furnishing of the trees. Pears and Apples are about the only kinds of trees trained horizontally; their leads should be cut back to 12 or 18 inches, and the side branches or shoots trained in their full length. Fan-trained trees—which system is the most suitable for the Apricot, Peach and Nectarine, Cherry, and Plum—will require to have the central, and it may be side, shoots cut back so as to originate shoots at suitable distances; but this more particularly applies to the central shoots, as the side branches from their greater depression from the vertical position afford shoots more freely. It is a great mistake to train in too many shoots, as they from the production of spurs soon become so crowded as to exclude light and air, necessitating the removal of portions of shoots, which not only interferes with the symmetry of the trees but induces great growth of wood, the balance between the roots and branches being injudiciously disturbed. The branches of the Plum, Cherry, and Pear should be 1 foot apart, also the Peach and Nectarine; but, as in fan training, they must necessarily be much closer for some length above the shoot or branch they originate from, they should be trained at such an angle that they will not have traversed more than 3 to 4 feet without being 1 foot distant from the one below it. The Peach and Nectarine, bearing upon last year's wood and requiring to have the wood renewed annually, must have the main shoots or branches disposed the same distance apart, with bearing shoots upon them 12 to 15 inches asunder, preferably on the upper side of the main branches. Apricots may have the branches similarly disposed with available shoots trained in between them at from 4 to 6 inches distance, those not available for training-in being spurred. The Plum and Cherry produce fruit both upon the young wood and spurs, the latter solely after the trees are fully extended; and the Pear and Apple upon spurs, though some few have the shoots terminated by a fruit bud. The Morello Cherry bears upon the young wood, therefore the primary shoots may be trained in similarly to the others by fan training, laying in the young growths from 3 to 4 inches apart, spurring those shoots that are not available for laying in, as in the case of the Apricot. Fruit trees are often advised not to be cut back after planting, but the shoots are recommended to be left their full length. This is not commendable, as the shoots are very often of great length, and as the trees must suffer considerable loss of root in removal the growth following is very feeble; indeed the trees often become stunted, growing very little for the next two or three years, the check given resulting in early precocity, had at the expense of the after results. By cutting-back growth is produced that will extend as many feet as the shoots of the uncut trees, so that by judicious shortening of the growths when activity takes place in the trees the space is sooner covered with better furnished and more profitable wood than if the trees had not been pruned. Fork over the soil of fruit tree borders to the depth of 2 or 3 inches. All that is necessary is to loosen the surface and keep down weeds.

FRUIT HOUSES.

Peaches and Nectarines.—The weather lately has been of the most wintry character—cold easterly winds, with frost and snow in some parts. The outside borders of the early houses will, if their protection has not been attended to, have been chilled, which is certain to result in a check to the trees; though the weather be favourable there is yet danger of snow falling and sudden frost occurring, therefore replenish the protection as may be necessary. In the earliest forced house the stoning process will soon be over, when the final thinning of the fruit must be effected. As soon as the stoning is over see that the inside border is kept thoroughly watered, mulching the surface with partially decomposed manure 1½ to 2 inches thick. The stoning process completed (which make sure of by trying a few of the least promising with a knife), the night temperature may be raised to 65° or 70°, and 70° to 75° in the daytime by artificial means, and 80° to 85° or 90° from sun heat. Still attend to tying-in the young shoots as they advance, regulating them so as not to be too crowded, as, by giving the young shoots plenty of room, the ripening fruit receives more sun and air for colouring, and the wood becomes more solidified and better ripened for another year. In the succession houses the routine will now be the thinning of the fruit where too thickly set, first removing those that are badly placed. This should be done gradually, as also should disbudding, commencing early. There must not be any lack of water at the roots of Peach and Nectarine trees in any stage of their growth, therefore be not deceived by the surface appearing moist, but afford water as required to maintain the soil in a thoroughly moist state. Syringe thoroughly in all the houses morning and afternoon when the days are bright, except when the trees are in blossom, in which case maintain a gentle fire heat in dull weather so as to admit of moderate ventilation, as a circulation of rather warm (50° to 55°) dry air is directly conducive to a good set. Mildew sometimes infests the fruit and foliage, in which case flower of sulphur must be promptly applied to the infected parts. Aphis must be kept under by fumigation, having the foliage dry, and being careful not to give an overdose. If there are evaporation troughs keep them replenished with liquid manure when the fruit is swelling freely after it has been thinned; this practice and a sprinkling of the borders and occasionally at closing time with guano water, 1 lb. to twenty gallons of water, will assist in keeping red spider in check.

Vines.—Late Vines if started as advised will now be swelling their buds. Ply the syringe freely three or more times a day if needed, seeking to secure a good break by closing the house with a genial humid atmosphere at a temperature of 75°. The sap rushing

to the upper part of the rods will often cause the eyes to break unevenly unless the canes be brought into a horizontal position for a time. Disbudding and stopping and tying the laterals in succession houses will need to be attended to, not allowing this kind of work to fall into arrear. On no account allow the thinning of the bunches and berries to remain undone a day longer than is necessary to ascertain the best-set bunches, and then to enable thinning of the berries to be properly performed. Free-setting kinds, such as Hamburghs, may be thinned as soon as the berries are formed, but Muscats and other shy setters ought not to be thinned until the properly fertilised berries can be noticed taking the lead. No rule can be laid down for thinning, as the size of the berries varies in different Vines of the same kind. Healthy strong Vines swell off much finer berries than those that are not so vigorous, but space should be left so that each berry will have room to swell without wedging or crushing, yet they must be close enough to retain the form of the bunch when placed upon the dish. Vines in flower should have a circulation of warm rather dry air, and a temperature of 65° to 70° at night for Hamburghs and 70° to 75° for Muscats. Colouring will be proceeding rapidly in the early house; the fermenting material must be removed and a thorough soaking given the inside border with tepid liquid manure, mulching with short dung. Do not fail to maintain a circulation of warm air day and night, reducing the atmospheric moisture gradually.

Orchard House.—Apricot trees are or will shortly be in bloom. Air should be admitted in abundance whenever the state of the weather permits, as a stagnant atmosphere is unfavourable to the dispersion of the pollen, and in damp weather fertilisation should be aided by the use of a camel's-hair brush filled with pollen from the anthers and applied to the stigmas, the right time to do it being when a majority of the anthers of the flower have ripe pollen, the stigma being then viscid. In the case of bright days ventilate early, and close the house rather early in the afternoon, which will cause as much as possible of the solar heat to be retained, otherwise an injurious depression of temperature may occur during the night. The trees should have abundance of water whenever required, especially trees in pots, which very often have the upper part of the soil moist enough, whilst at the base the soil is quite dry, which often results in the blossoms dropping off without setting. These structures have generally a sufficiently moist atmosphere during the setting of the fruit without resorting to the syringe owing to their being made receptacles for bedding plants, which require water more or less daily; and when they are made subservient to the requirements of the trees they are not injurious, but to keep the house closer for them, or otherwise diverge from the treatment necessary for the legitimate occupants, is to court failure of the crop of fruit.

PLANT HOUSES.

Stove.—Amaryllises will now be fast throwing up their flowers; ordinary stove culture is all they require, and a position where they will receive plenty of light when making fresh growth. Hippeastrum pardinum flowered with us at the end of the year, and is now showing flowers again. The plants require full exposure to the sun, small pots, and weak liquid manure during growth. Conoclinium (Hebeclinium) ianthinum is now in great beauty, its Ageratum-like heads being very effective. Cuttings of the half-ripened growth or young shoots strike freely in gentle heat, and make good plants for next season's flowering. Begonia manicata has large sprays of pink flowers; its feathery lightness makes it very effective for decorative purposes; it is readily increased by cuttings of the creeping stem. Begonias of the ornamental-leaved section have gone out of fashion, but they are really very useful for mixing with larger plants, but should be kept in pots of moderate size, 6 to 7-inch pots being large enough. Begonias of the flowering kinds, such as insignis, Saundersiana, fuchsioides, Ingrami, and nitida, flower freely in autumn and winter; cuttings inserted now and grown on will make fine plants by late summer, and are very useful for cutting. B. Dregei (parviflora) and B. Weltoniensis are also desirable for late summer flowering. Aphelandras, Eranthemums, Sericographis Ghiesbreghtiana, Thyrsacanthus rutilans, Centropogons, Plumbago coccinea superba, and other winter-flowering plants are best struck from cuttings annually; growing points with the base a little firm, strike readily in bottom heat. They should be grown on steadily during the summer in the full light, so as to solidify the growth and induce short-jointed wood. If large plants are wanted the old plants should be kept rather dry after flowering, cut well back, and when started into growth be shaken out and repotted. Vincas oculata and rosea are good summer and autumn decorative plants. Small plants in 4 to 6-inch pots should be shifted into pots two sizes larger; turfy loam, with a fourth of leaf soil or well-decayed manure and a sixth of sand, will grow them well. Keep them well stopped to induce a good branched habit: a light position in the cool part of the stove suits them. Torenias are fine for late summer; cuttings inserted now will make fine plants during the summer. Æchmeas, Tillandsias, and Billbergias are light-loving plants and should be kept near the glass, where they will flower freely. Allamandas, Bougainvilleas, and similar plants should not have their growth tied down until the flowers are set. Stephanotis floribunda to flower freely should only have moderate moisture and not too much heat, for with a high temperature and moist atmosphere the plants continue growing, the wood not being sufficiently solidified for the production of flowers. Dipladenias, Allamandas, Aristolochias, and Combretums succeed very well where the highest stove temperature is maintained for such plants as Ixoras; but Clerodendron Balfourianum, Bougainvillea glabra, Stephanotis floribunda, Hexacentris mysorensis, Thunbergias, Ipomœa Horsfalliæ, and Passifloras do better where a somewhat lower temperature and drier atmosphere are maintained. With the increased length of day the syringe may be used more freely. The best time to syringe is early in the afternoon (two or three o'clock), so as to have the foliage dry before nightfall.

Greenhouse.—The potting of Aphelexes, Acrophyllums, Adenandras, Chorozemas, Eriostemons, Dracophyllums, Tremandras, Statices, and all other plants of similar character should now be proceeded with and completed as soon as possible, for the increased dryness of the atmosphere later in the season acts unfavourably on newly potted plants. During bright weather the winds are often cold, and though the temperature may rise considerably it is not desirable to admit side air, as cold drying currents are most injurious in their effects. The plants should be looked over every day to see that none require water, paying particular attention in this respect for a few weeks after repotting. Any winter-flowering Heaths, Epacris, Acacias, and Cytisus which have ceased blooming should, if necessary, have their shoots shortened back to keep the plants in shape and of reasonable size. Place them in a temperature of 45° to 50°, syringing lightly every afternoon, and when they are fairly in growth pot all that require it. This will ensure their making and maturing an early growth, and they will therefore flower early next season. The stock of hardwooded plants for winter flowering should now be looked over, and where necessary augmented, this being a good time to secure healthy young plants, which if kept moderately close to induce root-action will be in capital condition for shifting into larger pots in about a fortnight. Pimeleas sometimes are infested with red spider, therefore examine the plants frequently, and syringe them once or twice a week, particularly on the under side of the leaves. Balsam seed for producing early-blooming plants may now be sown, also Cockscomb and other tender greenhouse annuals; and if Petunias, both double and single, are raised from seed sown now and grown on in gentle heat they will make fine plants for greenhouse or conservatory decoration in late summer. Insert cuttings of Tree Carnations and Bouvardias; they strike freely in moderate heat. Cuttings also of Zonal Pelargoniums should be inserted for flowering next winter, plants for summer flowering being shifted into larger pots, stopping the growths as required to secure a well-branched habit. Assist those advancing for flowering with liquid manure in preference to shifting them into larger pots. If Fuchsia cuttings be now inserted they will make good plants for late summer flowering. Cinerarias are always useful, especially in early winter, the self-coloured flowers being very desirable for cutting. Seed should now be sown, also of Primulas for early flowering. Calceolarias should be potted as they need it, 6 or 7-inch pots being large enough for general purposes, but any vigorous plants not yet showing flower may be shifted into 8 or 10-inch pots. They like a cool temperature and humid atmosphere, and when they are well rooted assist them with liquid manure. If seed of Cyclamen persicum vars. be sown in a hotbed and the plants grown on through the summer they will flower in winter and spring. Plants from seed sown in the autumn should be potted off singly and kept in gentle heat. Vallotas will now be growing freely. Give them abundance of water, and let them have plenty of light.

Bedding Plants.—Proceed with the propagation of Alternantheras, Iresines, Mesembryanthemum cordifolium variegatum, Verbenas, Petunias, Lobelias, and other similar plants. Continue potting off Pelargoniums, keeping them near the glass and gently growing, encouraging the more tender kinds with a temperature of 50° and a genial atmosphere. If Lobelias from seed are depended upon for bedding purposes the seed should be sown in gentle heat, continuing the pans there until the seedlings are ready to be pricked off, which may be done in cold frames kept rather close. Golden Feather Pyrethrum may be sown and placed in gentle heat, and when the seedlings appear remove the pots to a cold pit, subsequently pricking off the plants in boxes; or the seed may be sown in boxes in a cold frame, and the seedlings when large enough be pricked out upon a sheltered border. Seedlings of subtropical plants continue in gentle heat until established, and then remove them to a cool house to induce sturdy growth.

TRADE CATALOGUES RECEIVED.

Thomas S. Ware, Hale Farm Nurseries, Tottenham, London.—*Illustrated Catalogue of Choice Hardy Perennials.*

Benjamin Whitham, Reddish near Stockport.—*Catalogue of Hardy Evergreens and Ornamental Trees.*

William Potten, Sissinghurst, Staplehurst, Kent.—*Select List of Bedding Plants.*

Samuel Yates, 16, Old Millgate, Manchester.—*Descriptive Catalogue of Vegetable and Flower Seeds.*

James Lye, Cliffe Hall, Market Lavington, Wilts.—*List of New Fuchsias and Pelargoniums.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

ADDRESS (*J. E., Boston*).—Write to Messrs. W. & G. Purser, Warwick Street, Birmingham.

TEA ROSES (*A Lady*).—As the plants are showing flower buds you cannot do better than continue your present practice of assisting them with weak liquid manure. When they have ceased blooming cut out all weakly wood, and remove a good portion of soil from the pots and apply fresh rich loam, placing the plants in the open air during the summer to make strong growth. Gloxinia seed sown now will produce plants which under good cultivation will flower in September. Early in May is a good time for clipping Yew hedges, trimming them again late in summer.

HOPS (*Paddy Carey*).—The use of hops for brewing was introduced into England about the year 1524 from Flanders. Tusser in 1562 gives directions for the culture of the plant.

TULIPS NOT FLOWERING (*Young Reader*).— The evil of which you complain arises from the bulbs not having been sufficiently ripened last year, and is not due to the treatment they have received since they have been under your charge. The specimens sent to be named are insufficient. Send healthy flowering sprays later in the season.

POTATOES IN VINERY (*Weekly Reader*).—Remove the boxes from under the Vines, and place them in the Peach house for a week, and then if the shade becomes too great place them in cold frames, making them secure from frost. Both the heat of the vinery and the shade caused by the Vines have injured the Potatoes. This crop cannot be forced successfully without an abundance of light and free ventilation, neither can Radishes, Lettuces, and similar crops.

NUTMEG (*Querist, Woolwich*).—It is the fruit of a tree (Myristica moschata), native of the West Indies, especially of Great Banda. Mr. W. J. J. Spry, R.N., who lately visited the island in the "Challenger," says, "There are few cultivated plants more beautiful than Nutmeg trees. They are handsomely shaped, are from 20 to 30 feet high, with bright glossy leaves and small yellowish flowers. The fruit in colour and size is somewhat like a Peach, but oval; splits as it ripens, showing the dark brown nut within, enveloped in crimson mace."

CIRCULAR STEPPING TILES (*Constant Reader*).—Mr. Symons obtained the stepping tiles from Mr. Joseph Hamblet, Piercy Blue Brick Works, West Bromwich. He finds them very convenient in use, as a lady may gather her own flowers in dewy mornings without wetting or soiling her shoes. They are placed between every second row of plants, and thus every plant can be reached either on the right or left side. Some of the tiles are lowered level with the surface of the soil, others are merely placed upon it. A great advantage arises from the facility afforded for manuring the entire bed. The tiles are for that purpose removed and replaced again in a few minutes.

RICHARDIAS INJURED BY FROST (*Senex*).—Keep them in pots in a cool house until they have made some growth, and then plant them out in well-manured trenches, watering them copiously as the growth advances. They may be divided as required before being planted out. Water Melons require the same mode of culture as other Melons, but they are not so well worthy of it.

TABERNÆMONTANA CAMASSA (*T. E. L.*).—This plant, which we had not previously seen, is now flowering in Mr. Williams's nursery at Holloway, and is described in another column.

ROSE LEAVES SPOTTED (*K. S.*).—The leaves sent are small and imperfectly formed. If your plant is in good health the foliage that will be produced as the season advances will be of a very different character. Is the drainage of the pot good, the soil sweet, and the roots healthy? If so your plant will thrive; if not, adopt remedial measures at once.

GROWING ROSES (*A. T., Liverpool*).—We can only advise you to state your requirements to some of the great Rose-growing nurserymen.

RAISING LOBELIAS FROM CUTTINGS (*Tyro*). — Cuttings will strike readily in a cold frame if inserted during August, shaded, and kept close until rooted, and being hardened off they will winter safely in a pit or house from which frost is excluded. They would strike equally well in a greenhouse, but would require to be kept close by covering them with a frame or hand-light and shaded. The plants would afford cuttings plentifully if cut over about six weeks previously. They may remain in the cutting boxes or pans until February, and would then give a batch of cuttings that strike freely in a gentle hotbed. The Lobelia to which you refer is probably Pumila magnifica.

VINE LEAVES SCORCHED (*F. H., Cold Ashby*).—We do not think your Vine leaves have been eaten at all. The cause of which you complain is, we believe, the result of scorching. The Vines have been subjected to a high temperature, and this in conjunction with a prolonged absence of sun has caused the foliage to be flimsy—destitute of tissue. A few bright days suddenly occurring have scorched the leaves in places, and as these have dried (shrivelled) and the remaining portions of the leaves have expanded the burnt patches have fallen away, and thus given to the foliage a ragged appearance. If a bright day should follow suddenly a term of dull weather it would be well to subdue the rays of the sun by syringing a little limewash on the outside of the glass. With due care in the management of the temperature, ventilation, and moisture of the house you may yet enable your Vines to perfect their crop and to make satisfactory growth. Be very careful not to overcrowd the foliage. The leaves sent suggest that your Vines have been overheated or overcrowded, or both. Every leaf must have light.

STARTING VINES (*A. S.*).—Keep your house close and rather moist, maintaining a night temperature of 50° and a day temperature of 55° without sun; with sun it may rise to 70° or 75°. We will reply more fully next week.

VINE LEAVES NOT EXPANDING (*Constant Reader, Dundee*).—We can only suggest that your Vines require more heat and a genial atmosphere; or if the heat is sufficient the air of the house is too dry for the healthy growth of the foliage. Probably the Vines will improve as the weather becomes more favourable. It has been a very trying season for Vines, and we assume that you are experiencing a share of the difficulties of a long winter and sunless spring. A close and rather cold atmosphere is the cause of the Geranium leaves becoming spotted. They also will improve as the season advances. They may, however, require fresh soil, and to have the growths most affected cut out, when healthier growth will follow. Potatoes are sweet when frosted because the starch has been converted into sugar.

VINES TURNED OUTSIDE (*A Lady*).—Ten or twelve degrees of frost will not have done them any harm. Owing to the cold they will not have commenced to swell the buds, but they should be taken into the house without delay, so as to allow time for the ripening of the Grapes.

KIDNEY BEANS AND CAULIFLOWERS (*Idem*).—The Kidney Beans sown in early April in boxes under glass and planted out in May will come in earlier than a sowing made in the open at the close of April or beginning of May. The Cauliflowers had small heads, because they were not planted out early enough, and were probably drawn in the seed bed from being too thick.

SINGULAR GROWTH OF PRIMULA (*D. A., Wanstead*).—The union of the leaves as shown in your sketch appears to represent a case of natural inarching, which is not infrequent in the case of plants of a fleshy nature. We have seen the similar unions of Gloxinia leaves when one has crossed the other.

BIRDS DESTROYING GOOSEBERRY AND CURRANT BUDS (*H. T. H.*).—Avoid arsenic, it will kill the bushes, and in a mixture with soot and lime may remain to be washed by rains upon the fruit, and so prove injurious to human beings. We have not lost a bud, and all we have done is to shoot every bullfinch and dust the bushes after rain whilst wet with quicklime. Quassia water is very distasteful; 1 lb. chips boiled in four gallons of water for fifteen minutes, adding whilst cooling 1 lb. of soft soap and a gallon of tobacco juice strained. This sprinkled over the bushes with a fine-rose watering pot will make the buds distasteful to the birds; but it is necessary to repeat after heavy rains, it being more effectual to add to the quassia decoction and soap solution 1 lb. of tobacco powder and equal proportions of lime and soot to bring to the consistency of cream, and then apply with a brush. Blue tit (titmouse) we can count any day in or near our fruit garden by the score, and neither they, the great titmouse, nor the long-tailed titmouse have, so far as we could ascertain, taken a fruit bud of any kind whatever, but are ever alert for insects, we having watched them for hours, as they searched closely every branch and bud. The best plan of destroying wasps and bluebottle flies in a vinery is to half fill soda-water bottles with sweetened beer and suspend them by the neck near the ventilators.

CALANTHE CULTURE (*F. R. H. S.*).—Shake out of the old soil, cut away the dead roots, and repot in three parts lumpy peat, one of turfy loam, and one of old dry cow dung with just a dash of sand, the whole being well mixed. Drain the pots to the extent of 2 to 3 inches, place a layer of sphagnum over the drainage, and fill to within an inch of the rim with the compost, on which place the bulbs, working in about half an inch of soil between them, keeping just damp until fairly growing, then water freely until the growth is completed. They require a light position in the stove, or a night temperature of 65° to 70°, and 75° by day, with an advance from sun heat of 5° to 10°. The Cœlogyne cristata should be potted when it commences growing, employing chopped sphagnum and fibrous peat, and small potsherds, keeping the plants well up in the pots or pans. During growth it requires a liberal supply of water, but when that is complete reduce it, and when winter approaches cease watering altogether.

SULPHATE OF AMMONIA (*W. B.*).—Apply it at the time of planting the crop, or during growth, at the rate of 1½ lb. to 2 lbs. per rod as a top-dressing. The bone dust should be applied in a similar manner, and at the rate of half a peck per rod. Of dissolved bones half the quantity is a sufficient dressing. They are the better for being lightly raked in. Ammoniacal liquor is a capital dressing for a lawn, but it must not be applied too strong, or it will brown the grass. One pint to two gallons of water is ample to apply now, applying with a rose watering pot.

LIQUID MANURES (*Scrutator*).—The salts to which you refer are obtainable in a pure state, but many of them are too expensive for cultural purposes, neither are they necessary. When good soil is obtained, such as moderately fresh turfy loam, it usually contains all the mineral constituents required by plants; indeed, for a considerable time no kind of liquid stimulants are needed. When, however, the pots are filled with roots and it is not convenient to shift the plants into larger pots, liquid manure becomes of the greatest importance. In practice we find that only two kinds of fertilisers are required—one nitrogenous, the other phosphatic. The former is provided in a clean condensed form by either sulphate of ammonia or nitrate of soda, and the latter by superphosphate of lime. A mixture of one-third of the former to two-thirds of the latter is a valuable application for all plants that require manurial assistance. If either of the two substances first named are applied alone the strength should not exceed a quarter of an ounce to each gallon of water, except to very gross-feeding plants, when the strength may be slightly increased. The superphosphate of lime may be applied more freely, and we find it a good plan to sprinkle it lightly on the surface of the pots and water it in. Excellent fertilisers are specially prepared by manufacturers. You will find notes on inodorous liquid manures in another column.

SMOKE FROM BOILER (*E. H. N.*).—The chimney or smoke funnel must be defective, the joints not being properly secured. If that is not the case the escape must result from a down current, which may be rectified by lengthening the upright arm of the smoke pipe, or probably a cap of sheet iron placed over the top would prevent the down draught, the cap projecting over the orifice about 3 inches, and that extent kept clear all round for the products of combustion to escape.

PANSIES OF LAST YEAR (*Caroline*).—Do not disturb them, but give a top-dressing of rich compost or well-decomposed manure, and peg the plants

down as they grow. They will not flower so well as during the first year, therefore insert cuttings in summer, and make fresh beds with young plants in early autumn.

RAISING AMARYLLIS FROM SEED (*Horticus*).—Sow now or as soon as ripe in turfy loam, and place in a brisk moist heat, keeping the plants near the glass in plenty of light. The seedlings will flower in about three years.

COMPOST FOR ANTHURIUM SCHERTZERIANUM (*Idem*).—Very fibrous peat in lumps, with an admixture of pieces of charcoal and potsherds to the extent of about a sixth each, and a sprinkling of crystal sand. Good drainage must be given, as the plants require very free watering.

NAMES OF PLANTS (*Stirling*).—No. 1 was so crushed and flattened as to be quite beyond identification. No. 2 is an Oxalis, but we cannot determine the species by the scrap sent. It appears to be very richly coloured and worthy of preservation. (*Rosa*).—The mauve coloured Orchid is Bletia hyacinthina, and the pink one we think Rodriguezia secunda, but it is not easy to determine from a small solitary flower. (*F. E. H.*).—Bletia hyacinthina. (*J. H., Sussex*).—1, It is a Cistus, but we cannot determine the species without a flower. 2, Sedum carneum. 3, S. azoideum variegatum. 4, Primula denticulata. 5 appears to be a Juniperus of some kind, but the spray is insufficient for identification. (*J. C.*).—1, Golden Hedgehog Holly; 2, Templetonia glauca; 3, Aubrietia purpurea; 4, Hepatica triloba; 5, Omphalodes verna; 6, a Senecio, the specimen insufficient.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

MANAGEMENT OF A BREEDING FLOCK OF LONG-WOOLLED EWES.—(*Continued.*)

IT is not necessary to feed the ewes with cake or corn when the rams are turned with them for insuring the production of a large number of twin lambs as is often required in the management of short-woolled stock, because the long-woolled tribes are notorious for the great proportion of twin lambs which they yean even on moderate feeding. In making a comparison with down breeds of sheep, which only bring 90 per cent. of lambs in their native counties of Hants and Sussex, we find that the Cotswolds and Lincolns will give 115 per cent., and the Leicesters 110 per cent. of lambs, therefore it is desirable that the ewes a short time before lambing should get a little decorticated cotton cake, in order to flush the milk for the large number of lambs which may be expected. After the ewes have lambed it is a good plan where convenient to keep those with twins separate from the rest of the flock, and give them a more liberal diet. Half a pound of linseed cake for the ewes per day will tell very much in favour of the lambs, and also prevent the ewes from falling into too low condition, and thus rendering them more liable to diseases and disorders.

The lambing time of these long-woolled ewes is about March and the first fortnight in April. The fold for ewes may now be made on a dry sheltered piece of pasture and shifted daily, instead of incurring the extra care required by the lives in a "dead fold." As fast as the lambs fall, if strong, they may be removed into the pastures for a few days, except those that are weakly, which will require extra care and attention, being afterwards removed to the arable land and receiving roots, hay, &c. On the dry land farms where the Cotswolds are kept the management will be very similar to that of the down breeding flocks. Whilst the Swedish turnips last they will from this time generally furnish a useful growth of greens into which the lambs will run forward, and at the same time receive some good hay specially provided for them, and to consist of Dutch clover and suckling or Dutch and trefoil. These grasses make the finest and sweetest hay without rye grass, and may well be termed and grown as lamb hay. It is extremely important that the hay be very soft and fine, which it is sure to be if the grass is cut young; the lambs will then be induced to eat it much earlier than hay containing rye grass. The hay for the ewes may be the produce of the broad clover and rye grass, and when cut early they will consume the whole of it without the labour of cutting into chaff, the only advantage of chaff being for admixture with straw or other feeding materials. We, however, prefer when feeding the ewes with cake or corn meal to mix it with the cut roots, as no waste then occurs, and each animal in eating the roots is bound to have its share of cake or meal also. The lambs, although they will eat the hay very early, and will in most seasons have plenty of greens to eat, yet if it is requisite to force the lambs, and particularly the twins, which cannot have too much care, it is well when no carrots have been provided or Swedes pitted for them that the Swedes which are in the field should be cleaned and passed twice through Gardener's cutter; the pieces will then be small and well adapted for lambs, and to induce them to eat corn meal or cake meal as early as possible it should be mixed with the cut roots. After a while the lambs which are to receive artificial food may have cracked peas in preference to cracked beans placed in the troughs. This food, together with the hay and greens, will keep them in excellent order. As soon as the wether lambs are about fourteen days old those that are strong may be castrated, but the twin or weakly lambs should be twenty days old before undergoing the operation.

We must now refer to the keep and feeding of the ewes. We will suppose, as will be the case, that the ewes will be of mixed ages—two teeth, four teeth, six teeth, and full-mouthed; and whilst on roots with their lambs, if they have a full allowance of good clover and rye grass hay, they will by eating the Swedes on the land be doing well as a stock flock, excepting those ewes which have twin lambs. These should be kept apart from the rest of the flock, and may with advantage receive cut Swedes in troughs instead of eating them off the ground; with cut roots they do much better, but in case it is desired to give them corn meal or cake meal it should be mixed with the cut roots. This will not only keep the ewes in better condition, but afford more and richer milk for the twin lambs. Probably before the Swedes are quite finished the rye and trifolium will be fit for feeding; the ewes and lambs may then have a piece of this green fodder hurdled off daily, and return to the Swedes at night. This plan will gradually accustom them to green food, and prevent a sudden change from Swedes to grass, rye, or trifolium. All sudden changes of feeding are objectionable, for although the weather and the season may be ever so favourable for the stock, yet it is sure to be attended with some loss—in fact, this is one of the great secrets or points of detail in sheep management which cannot be avoided without paying a penalty more or less severe.

The next move for the stock will be into vetches at night, receiving during the day a run upon the field grass or pastures; in dry hot weather mangold may be given until some time in July, when the ewes will be shorn and the lambs weaned. We do not approve of too early shearing of the long-woolled sheep where the fleece is so valuable, besides which the wool is rather shorter and closer from late shearing during the winter months, which renders the animals more comfortable in the rainy season. These heavy-fleeced sheep require particular care at the time of washing. The depth of wool is so great that it becomes extremely heavy when loaded with water, and unless care is taken that the sheep take their turn regularly to come out of the water some of them often suffer severely from taking water internally. The late period at which the ewes are shorn generally insures their well-doing; the only cases in which they are likely to suffer in health is by lying in the vale meadows at night where they are below the fog level. The wool of these flocks is of great importance. They will often give on the average 8 or 9 lbs. of wool, the Lincolns will yield more sometimes. We always like to shear the ewe lambs without washing, as they winter so much better with a firm close coat; the same remark applies to the wether lambs if they are retained to fatten on the farm. If the wether lambs are for sale they should not be shorn. We have found shorn tegs sold in the spring fetch from 5*s.* to 7*s.* per head more than those fed in their lamb's wool.

After the lambs are weaned the ewes will continue on the pastures, and at night be folded upon early turnips with hay, until they have been to the ram, after which they should if possible be fed on dry pastures, and when the grass becomes scarce they may receive field hay and cabbages upon the pastures; we say field hay because the meadow hay often contains "ergot," and may produce abortion, but field hay never does, the grass always being cut before ergot can be formed. The wether lambs if retained may, together with the ewe lambs, be fed on the roots upon the arable all the autumn and winter upon the dry land farms; this will enable them to be fed differently and separately from the breeding ewes. Upon the heavy land farms with a large portion of pasture the management would be somewhat different at certain seasons of the year; for instance, in the autumn and winter months the stock should not feed off roots at all upon the strong soils, but the green crops will be available all the summer in the same way as that adopted upon the light land farms. A larger portion of root crops should be stored for feeding on the pastures, such as cabbage, Kohl Rabi, Thousand-headed kale, &c.; the latter, however, together with the Swedes in the spring, may generally be fed on the land from the end of March through the month of April, the land to be sown with drege corn.

The next part of our subject relates to the keeping of a flock of breeding long-woolled ewes upon an entirely pasture farm; and although this is quite an exceptional question, yet it is found in some counties, but not often, because the fens and marshes are usually fed by cattle or sheep for the fat markets. Grass to be fed nearly all the year round by a breeding flock, and supplemented by pasture hay, should also be further supplemented by decorticated cake and mixed with hay chaff for the ewes, and oil cake and cracked beans for the lambs. This food will not only

bring out the stock well, but improve the pastures also, particularly if the winter feeding is carried out upon the driest and poorest pastures.

WORK ON THE HOME FARM.

Horse Labour.—If any of the work of the farm which might have been done during the bad weather of winter is now in arrear it will be the cause of serious delay now that all the horse power of the home farm is required in tillage and seeding of the different crops of pulse, Lent corn, &c.—in fact, the usual spring seed time has now arrived, and nothing must be allowed to interfere with work consequent upon it. Beans and peas should now be sown. There is a bean called the Cluster, and so named from the fact of the pods growing in bunches or clusters. It is a good yielding sort; but as the season is getting rather late, and the latest-sown beans being always most liable to blight, it is advisable to drill some peas or vetches with them in order to insure a crop, as the peas and beans hardly ever suffer from blight in the same season. After a long frosty winter it is not improbable that we may have a dry and peculiar summer, such as we have often known to follow such a winter. This must at any rate be provided for, because the management required to meet the effects of an unusually dry summer will by no means prejudice the position in the event of the season being wet instead of dry. To meet a dry season early sowing is most important, and it is of more consequence to get in the seeds of barley early than it is to spend more time by ploughing and extra harrowing, &c. This extra labour involves delay, and often the land after extra tillage becomes too dry and delays the vegetation and growth of the seed. The sowing of the clover and grass seeds should take place at the same time as the seeding of the Lent corn in order to insure its vegetating. The land should be worked very fine, and the seeds sown immediately behind the ring roller. This will insure these small seeds being buried shallow, particularly if the chain harrow only is used after sowing the seed. Any other harrows or drags open the land too much, bring up clods, and altogether interfere with the successful seeding and growth of the small seeds, either of clover or the grasses. April wheat may still be sown either for a crop or to cut for straw, or fodder before a root crop; and as straw is valuable upon so many home farms where park and pastures predominate it is a valuable addition to the resources of the farm to take a straw crop before the root crop, which we do constantly without damaging the prospect for a root crop like turnips, cabbage, Thousand-headed kale, &c. It is also important if the seeding of beds for the production of cabbage plants has not yet been effected, the sooner it is done the better. We do not like depending upon the purchase of plants when required, for in very dry and hot weather the plants suffer very much in transmission, particularly when they are delivered in a very small state. The sorts we recommend are the Early Oxheart, the Champion Drumhead, and large Drumhead Savoy. These sorts, together with the Thousand-headed kale, furnish all that is required to afford a good succession for the feeding of sheep, cattle, and pigs; the kale, in fact, will probably sooner or later supersede the dwarf rape entirely, and kale may be planted in the driest season after a cereal crop, for the plants when ploughed-in or spade-planted are sure to grow and give an enormous quantity of spring food, although planted as late as August or during the first week of September.

Hand Labour.—Draining, and all the important work of the farm, such as hedging, ditching, and trenching in the meadows, should now be finished, and if the weather continues dry the turfs which arise in trenching should be burnt into ashes, as it is too late to spread them on the pastures. Our shepherds and dairymen will now be fully employed in important work. The water meadows will soon be ready for feeding. Although the grass is rather later than usual this year, there is no fear of rotting sheep upon grass in the spring on the water meadows. We think proper to mention this, as otherwise persons unacquainted with this fact may fear to feed them, noticing as we do continually reports of sheep dying of the rot in various counties of the south-western and western districts. We have before called attention to this matter, and especially in this Journal during last autumn, and there can be no doubt that the animals dying now from the rot took the damage in feeding the pastures last autumn, and practically it might have been prevented, because it is not sufficient to produce the rot when the animals take into their stomachs the entozoa, and it only proceeds to cothe or rot them when they lie at night in the meadows without change of food. Thousands of acres of low meadows will cothe the sheep, but never if the animals have a good meal once a day of grass or green fodder—the produce of the arable land, more especially if they are allowed cake or corn and lie on the tillage land at night. We have proved this in our own management for many years. After the floods of last summer young cattle also may in some instances have been affected with the sand rot without a change of food similar to that recommended for the sheep, as the sand affects the liver and intestines, only in quite a different way. Dairy farming is still the mainstay on the heavy lands and low pastures, and although the importations of foreign meat may affect the prices of beef, yet the milk trade is likely to hold its own against the importations. Milk in some cases is rather lower in price than it was, but there are other alternatives, such as making cheese, butter, and fattening calves for veal.

SCIENTIFIC MATING OF POULTRY.

If we turn to the chapter on gallinaceous birds in any elementary ornithological work we read as one of the first characteristics of the tribe that the male bird differs greatly from the female, and far surpasses her in beauty and brilliance of plumage. The most veritable novice in poultry breeding could hardly be ignorant of this fact, and must learn to distinguish at a glance the corresponding points of the cock and hen of any one variety. There are, however, breeds, in the two sexes of which a person who had never given the slightest attention to poultry would hardly see any similarity—*e.g.*, Brown, Red, and Duckwing Game, Silver-Grey Dorkings, and Dark Brahmas. We have known even would-be connoisseurs a little puzzled in the case of varieties with which they are imperfectly acquainted. An influential French Judge at the Paris Exhibition, a Deputy of the Chamber, and writer on artificial incubation, could not be persuaded that Dark Brahma cocks and hens came of the same race. This seemed *prima facie* a very amusing piece of ignorance; but to anyone well acquainted with the mysteries of mating poultry for exhibition it must appear a not unmerited, however unconscious, censure upon our present clumsy method of breeding. Probably the Dark Brahma cock and hen did not come from the same pen, and if mated together would not produce either cock or hen as correctly marked as themselves.

There are some breeds in which it is more easy to produce excellence in one sex than the other, and it is a great proof of acute observation and real knowledge when a fancier can point out the special points which in one sex are likely to produce corresponding points of form or colour in the other. A full knowledge of these relative marks, based not upon fancy nor upon one or two chance cases, but upon a reliably large number of instances, is what we call science, and breeding conducted on such knowledge scientific breeding. Up to a certain point this is most commendable. In breeding any tribe of live stock to a certain type, either of useful excellence or fancy beauty, nothing can be more foolish and unsatisfactory than happy-go-lucky mating. By this we mean mating without any regard to the ancestry of either side or expectation of the probable result of the union, but on the bare chance that one in twenty of the produce may be superexcellent. Luck sometimes favours the method, but the good animal or bird seldom reproduces its like again. There is, however, a point to which scientific poultry breeding is advancing more and more, and which we consider strongly to be deprecated, we mean the production of the two sexes from two entirely separate pens differently matched, either of which will only produce the one sex of any merit. This has long been done in certain breeds, notably Hamburghs both Spangled and Pencilled. It is a well-known fact that the Silver-spangled cock with his lovely curved sickles spangled at the ends will not produce the fashionable type of pullet with spangling so large that the ground colour can scarcely be seen. She, again, will only produce a cock deficient in tail, being of the hen-tailed "moony" race.

Again, we understand that a perfect pair of Golden-spangles requires to be made up of three different races! Pencilled Hamburghs, too, are for the most part bred from two different strains, the correct lacing of the cock's tail only being found to go with heavier pencilling in the hen than now finds favour, and the deep ground colour desirable in the Golden hen being the counterpart of too dark a bay in the cock. We have, however, bred good show specimens of both sexes from the same pen of the last variety, and so it is not a strong case in point. Game fowls also have long been bred in the same way; the most brilliant colouring of the Black Red cock being the offspring of the Wheaten hen, herself a bird of no exhibition value. Dark Brahmas have of late been subjected to this system, as the arbitrary taste of the fancy has begun to require black breast and fluff in the cock, and the most clear pencilling in the hen's breast, which two points are hardly obtainable from the same strain. There is a tendency to the same curious taste in other breeds. Buff Cochin hens are required by some Judges of a rich deep buff hue, and cocks of a glowing even yellow; the said hens being only produceable from a much darker cock with quite red wings. Even the Dorking, the useful fowl *par excellence*, which of all others should be exempt from such caprices, begins to be subject to them—at least the Silver-Grey variety. We are told that cocks should have the purest white hackles and hens deep robin-red breasts. Such cocks will almost invariably produce hens with salmon-coloured breasts, and such hens cocks with black stripes on the neck hackle. We should be quite content to have cocks with slightly striped hackles, which will produce hens with a pretty medium colour of breast. We do not pretend to be great connoisseurs of Andalusians, but we have strong reason to think that the very dark tints now required in cocks do not go with the beautifully even colour which is the great characteristic of a good hen.

Of course from an æsthetic point of view there is something to

be said in favour of this system; the ideally most beautiful type of bird is chosen from each sex, but we do think that fancy is here carried beyond its legitimate bounds. The perplexity into which novices in breeding are thrown is very great, and their consequent disappointment proportionately so. We once knew a case in point. The first-prize Silver-spangled Hamburgh cock and first-prize pair of hens were purchased at Birmingham for large sums and presented to a lady. We need hardly relate the result. The said birds won at one or two shows, many chickens were carefully raised from them, but did not follow in their parent's steps. We have experienced trouble from the same source. We were asked to sell eggs of one of these unfortunate varieties, and sent them from carefully mated pens. The buyer said not a word about which sex he specially admired, and in all probability would have been utterly puzzled had we made the inquiry. We naturally sent eggs indiscriminately, from which a goodly lot of chickens hatched in due time and were reared. The inexperienced fancier picked what to him looked the best cockerel and pullet and sent them to a show. They were highly commended, and the judge, in self-defence, when asked why he had not given them a prize, replied that the cockerel was first-rate, but the pullet not an exhibition bird. Forthwith the owner wrote an indignant letter to us, complaining that we must have mixed some inferior eggs with a few from our "prize strain." Of course the fact was that he had shown a pullet from the cockerel-breeding pen. Such a dispute is extremely annoying to both buyer and seller, for probably the former is too ignorant of the whole subject either to comprehend or believe the true explanation of the case.

We shall be asked what remedy we propose for this state of things. The question is not easy to answer. Of course an off-hand reply would be that fanciers should agree upon the highest type of beauty which is produceable from one stock in both sexes. It is more easy, however, to talk of such an agreement than to arrive at it; and in these days when cocks and hens are shown separately it would be next to impossible to persuade judges to change from the present standard for either sex of any one breed simply because the opposite sex could not be produced in perfection from it. We can only hope gradually to influence fanciers in favour of more truly scientific breeding. Most of these points which it is so difficult to produce in both sexes are points merely of feather and not of form; we therefore always give great weight to form. If the more extensive and generally most successful breeders of each variety of poultry would only give their attention to overcoming the difficulty we believe it might in time be overcome. If they would discover the most beautiful type of both sexes which can be obtained from one family and persistently show specimens of it—if of the larger breeds, fine in form and size—if of the smaller, beautiful in elegance, even though one sex were deficient in some now-desired fancy point, they must ere long influence the general taste. It is much to be desired for many reasons that some new standard of excellence should be drawn up, embracing all the most newly introduced varieties. Of course the standard for each breed should be agreed upon by a committee of its most experienced admirers. If the correlative points in the male and female of each could be explained in such a work, and the reason given why certain apparent points of beauty should not be insisted on too strictly, we feel sure that much good would accrue to the fancy, and it would be freed from the reproach that cocks and hens are shown as of the same breed which really come of two different races.—C.

VARIETIES.

The Hon. Sec. of the Poultry Club sends us the following list of Officers and Committee of the Club for the year 1879. According to the rules of the Club half of the Committee has been renewed, though most of the retiring members have been re-elected. *President*—Hon. and Rev. F. G. Dutton (re-elected). *Vice-President*—Hon. and Rev. A. Baillie Hamilton. *Treasurer*—H. R. Dugmore (re-elected), and Rev. H. R. Peel. *Hon. Sec.*—O. E. Cresswell. *Committee*—R. A. Boissier. T. C. Burnell, A. Darby, R. E. Horsfall (re-elected), S. Matthew, Rev. J. D. Peake, E. Pritchard (re-elected), and Rev. W. Serjeantson (re-elected).

—— We understand that after this month Mr. Martin will cease to manage the famous Patshull poultry yards, of which we gave a description a few weeks ago.

—— We are glad to learn that the authorities of the Wellingborough Show have honourably settled a question in dispute concerning the sale of a Game cock, which otherwise would next week have been brought before the Committee of the Poultry Club.

—— One of our contemporaries has opportunely warned the fancying public against a swindler named Lloyd, who has since adopted other aliases. We regret to hear that a Buckinghamshire exhibitor, whose yards of Cochins are fast becoming famous, has been among the number of the victims of this cheat.

—— We have received the programme of Pigeon races for the coming season issued by the newly-formed Surrey Columbarian Society. The dates fixed are for birds of any age: May 14th, from Portsmouth; June 18th, from Brighton; July 23rd, from Oxford. For young birds only: August 27th, from Reading. Entries close seven days prior to day of race, and the birds entered for a race must arrive at the rooms of the Society, 78, High Street, Guildford, the night previous, addressed to the Secretaries, Messrs. Walker and Allen.

—— We have before us the schedule of a large Poultry, Pigeon, and Rabbit Show to be held at Brighton on May 24th, 26th, and 27th. Fifteen pieces of plate are offered, which in some cases are given in addition to the prize money. There are thirty-two classes for poultry, twenty-four for Pigeons, and twelve for Rabbits. The Show will be held under the patronage of many influential persons, and Mr. J. A. Sandars is the Hon. Secretary. We do not however, find a list of any responsible committee of management.

—— A correspondent "B." writes to us as follows on American honey: "I have just bought from my grocer a small frame of honeycomb enclosed with glass sides. He says it is American. The taste is peculiar, reminding one of sugar. Do any of your bee correspondents know of such honey, and is it to be recommended?"

—— The Rev. W. F. Radclyffe writes as follows on providing food for bees:—"Bees are very fond of buckwheat. I do not keep them, but suggest the above. When potatoes are dug about August 7th—the time I lift—I sow before forking Early Stone turnip seed, which affords me turnips during winter. I leave a quantity for turnip tops, which come in before Asparagus and seakale. If some of these are allowed to flower the bees will have some early food."

—— Intending exhibitors in the Langshan classes at the forthcoming Brighton Show (May) are requested to send their names to Mr. A. C. Croad, Manor House, Durrington, Worthing, Hon. Sec. Langshan Club.

—— An old housekeeper writes as follows on preserving damsons, cherries, or other ripe stone fruit. Allow 1 lb. of crushed lump sugar to 3 lbs. of fruit, wipe carefully, and set the kettle over the fire or hot hearth. Let them thoroughly heat through without breaking. As soon as they boil up pour immediately into your bottles that have been previously dried and heated, bladder and tie down at once. N.B.—The bottles must be quite full, and tied down before the steam subsides.

BEE WEATHER IN ALGERIA.

It may be interesting to some of your readers to know the kind of bee weather there has been in the far south, whilst British hives seem to have been pretty generally hidden away under the snow. The summer of 1878 was one long-continued spell of fierce heats and drought; for some five months no rain fell, and as a consequence bees fared very badly.

In October some rain fell, and bees worked on the few orange trees that bloomed a second time, on the Neflier de Japon, or Japan Plum, which tree remains in bloom a very long time and bears large bunches of melliferous flowers.

About November 18th fierce west winds with rain came, and shortly after snow fell, covering the slopes of the lesser Atlas Mountains, reducing the temperature to an average 55° midday—nights 41°. Suddenly the wind changed to the south, the sirocco or wind of the desert blew with great fierceness, and at 8 A.M. thermometer registered 62°, and at midday 75°. This lasted to December 20th, when we had a lull in the wind, only to recommence hotter than before for Christmas day, when the temperature was an average 76° to 78°.

When this wind died away we had a few days of pleasant weather, only to be succeeded by a series of high gales from the south and west alternately, shrivelling and scorching up all vegetation. For eleven years such gales of continued severity have not been experienced here.

January 15th I saw almond trees, field beans, and peas in full bloom, but bees derived no benefit from them, for the fierce winds and powerful sun dried up every source of honey. January 17th I noted the first drones bred in a very strong colony which had been well fed up in October.

January 22nd.—The renewal of a series of gales from the south and west even worse than those we had already experienced. The rain so much needed held off, and as soon as it showed signs of falling the wind seemed to increase in strength and drive it off; and so it went on—not a drop of rain, the fields parched as in August, and not a field flower to be seen, bees robbing each other to get a living somehow—man and beast alike feeling the need of the blessed rain. At last it came February 23rd, just in time to save the crops from utter destruction, accompanied by falls of snow even in the plain of the Mitidja. Temperature fell rapidly, and the mornings repeatedly marked 41° at 8 A.M. The rain over, the sun blazed out in all its glory, tempting the bees to fly, only to meet their death in thousands from the icy blast blowing from the snow-covered mountains.

There has been literally no feed for bees for months, and hive after hive has perished of those whose construction rendered i

impossible to feed. Up to the present not two-thirds the proper amount of water has fallen. Orange trees are leafless and shrivelled up by the winds, whilst many are already in flower, forced on by the hothouse temperature we have experienced. Thus it is that hives good and strong are weaker to-day than in December—the depopulation has been simply fearful, and were it not for feeding I believe I would hardly have a hive to show. As yet hives here have not built an ounce of wax, there is neither the necessary temperature nor the materials to form it from. Since Christmas we have only had one period of a few days during which I got foundation worked out properly, and could note an excess of nourishment arriving in the hives.

An Arab recently brought me a hive at 8 A.M., offering to sell it me. I examined it; there was a dense mass of bees grouped on the combs, but all still as the grave. "They are all dead," I exclaimed. The Arab, astonished, gazed at them in silence; then, saying it was only the cold, he lit a piece of rag, then placing the hive in an inclined position he directed the warm smoke from the rag amongst the bees. Gradually the mass began to thaw. One after another quivered their wings, and by warming up in the sun and feeding some honey they are now all right, and I hope will prove a good stock. This Arab had closed the hive up the night before and laid it on the ground ready to bring to me. The night proved a very cold one, and the bees were chilled *en masse*.

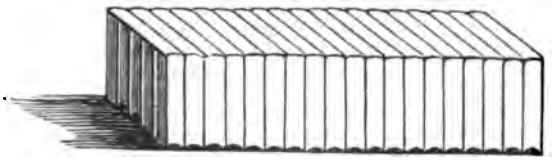


Fig. 34.—Arab Hive.

The Arab hive is constructed generally of a piece of cork bark rolled to form a tube, or else is made of a kind of porous cane. forming a long tube 36 by 9 by 9 inches outside measurement, This cane is of a pith-like nature, and makes a hive very warm in winter and cool in summer. It is generally plastered over with cow droppings, which fill up all the little spaces vermin could enter by. Notwithstanding these warm hives the cold has been so intense here at night that hive after hive has succumbed, and when examined there is not a trace of food to be found and little or no brood, clearly showing how starved-out bees have been this terrible spring.

A common thing for the Arabs to feed to their bees in the spring is the common fig. They cut the fruit in halves and run a stick through several, placing the stick upright inside the hive, the bees making short work of the sugary matter contained in the figs, soon leaving little but the skins.

I do not see any prospect of abundant swarms, for up to the present time there has been no breeding, and this is the month for the great laying of eggs, the swarms in propitious years coming off from the second to third week of April. As I write the temperature is over 70°, the sun shining strongly, but an icy blast blowing keeps nearly every bee indoors. I only hope that when the mantle of snow disappears in Britain my bee brethren will have a more propitious spring for swarming and honey prospects than we are having in Algeria.—ARTHUR TODD.

AMERICAN HONEY.

I SEE in our Journal, in the article entitled "Bee Gossip," the doubts of our excellent bee-master, Mr. Pettigrew, as to American honey, and since then I have noticed in one of the daily journals that at a committee of the British Bee-keepers' Association the question was prominently brought forward, Why should it be so difficult to sell English honey, whilst tons of American honey (so called) find a ready sale? I will not enter into this question, but will restrict myself to my first intention of helping Mr. Pettigrew to solve his doubts as to the real nature of American honey.

He does our cousins an injustice in thinking that they would palm off their maple juice as honey, and I do not think that a word could be said against them under the strictest interpretation of the adulteration Act. In our dictionaries I believe honey is described as a sweet juice collected by bees and deposited in cells in the hive, and now comes the question. The first importations were made in neat little glass jars full of apparently run honey with small divisions formed of virgin honeycomb. I purchased some for the delectation of the children, but from the mawkish flavour I at once decided that it was glucose.

Glucose has the property of preventing crystallisation in syrup, and is therefore largely used by confectioners in the manufacture of jams, &c. I have used it myself for some years past in making up the food for my bees for the autumn feeding, and I think I mentioned this fact in my notes which you printed last year upon this subject.

I believe that the so-called American honey is almost entirely glucose, and I have been confirmed in this belief by learning from a friend that in those districts where the honey is produced commercially the consumption of glucose is enormous. It would be worth while to have a good analysis made if anyone is at all sceptical; but in the meantime I take the trouble of sending into the country for what we require, preferring to pay a little extra per pound for the real honey to buying glucose at many times its real value, because the bees have spent their labour upon it.

There is no doubt that the importation of honey has become an important trade, and now that we are beginning to understand apiculture scientifically the Bee-keepers' Association will deserve our best thanks for taking up the question so that we may be self-reliant. It is, however, in much the same case as the production of eggs—of trifling importance on a small scale; and I fear that John Bull has not yet become fully alive to the fact that in these days of ships, canals, and telegraphs, a quicker large result is often attained by saving farthings than by making pounds.—C. M. MAJOR.

OUR LETTER BOX.

FATTENING POULTRY (*C. M. C.*).—The oatmeal or ground oats recommended for fattening poultry is not to be boiled, but merely mixed cold.

KEEPING EGGS (*E. H. N.*).—Place the pans in the coldest place you have, where the temperature does not fall as low as the freezing point.

CANARIES AND THE USE OF CAYENNE PEPPER (*A. Jones*). — Beyond considerably increasing the colour of Canaries the pepper is useless. If you wish to use cayenne pepper to heighten the colour of your birds mix a teaspoonful of it with one hard-boiled egg and a small tea biscuit, one about 2 inches in diameter. Chop the egg very fine, or, better still, press or rub it through the fine wire meshes of a sieve. Mix well together the three ingredients, and commence with the food before the birds commence moulting, or the heating diet will not have the desired effect. The more pepper the birds swallow the more intense will be the colour of the plumage.

CANARY HEN AND A COCK BULLFINCH (*Idem*).—You ask the question, "Will a hen Canary and a cock Bullfinch do any good? I have these two birds together, and they seem very quiet." Reply: If the birds agree what more is required? Bullfinches vary very much in temperament. We have known several instances of Canaries being killed by Bullfinches, and on the other hand have found them to live in harmony with each other.

FOOD FOR COWS IN MILK IN WINTER (*J. W. L., Erith*).—The extreme allowance for an animal of ordinary size would be of cut mangold from 60 to 70 lbs., and of hay, according to quality, from 25 to 28 lbs. per day.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. March.	9 A.M. Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	IN THE DAY. Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 19	29.736	49.2	46.9	N.E.	41.4	63.1	40.3	99.2	35.6	—
Th. 20	29.805	45.1	42.2	N.	42.6	56.0	42.3	82.0	40.0	—
Fri. 21	29.853	41.4	39.5	N.N.E.	42.9	51.3	39.0	74.1	38.4	0.012
Sat. 22	29.757	35.9	34.6	N.	42.1	39.4	34.6	41.7	35.3	—
Sun. 23	29.832	34.4	32.6	N.	40.5	37.7	32.8	49.3	33.2	—
Mo. 24	29.889	30.5	27.9	N.	39.0	33.4	30.0	46.1	27.8	0.040
Tu. 25	29.832	31.5	31.9	N.	37.9	34.0	30.0	45.7	30.0	0.093
Means	29.815	38.3	36.5		40.9	45.0	35.6	62.6	34.3	0.145

REMARKS.

19th.—Very bright, warm, sunny day, quite spring like.
20th.—Fair throughout, but not so warm, and but little sunshine.
21st.—Fine morning, overcast and gloomy in afternoon; cloudy night.
22nd.—Cold and dull throughout.
23rd.—Fair and very cold, bitterly cold wind, slight snow at 11 to 11.30 A.M.; brighter, with little sunshine between 5 and 6 P.M.; starlight evening.
24th.—Very cold dull day.
25th.—Snow in early morning, which continued the whole day, many of the crystals very fine and large, one was 0.28 inch in diameter.

Rapid fall of temperature from the beginning to the end of the week. The last two days bitterly cold.—G. J. SYMONS.

COVENT GARDEN MARKET.—MARCH 26.

OUR market is now very bare, American and homegrown Apples being nearly over. Good late Grapes are in less demand, and prices barely maintained. Outdoor vegetables still short.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples	½ sieve	2	0	to 5	0	Melons	each	0	0	to 0	0
Apricots	dozen	0	0	0	0	Nectarines	dozen	0	0	0	0
Cherries	℔ lb	0	0	0	0	Oranges	℔ 100	4	0	12	0
Chestnuts	bushel	2	0	6	0	Peaches	dozen	0	6	0	0
Currants	½ sieve	0	0	0	0	Pears, kitchen	dozen	0	0	8	0
Black	½ sieve	0	0	0	0	dessert	dozen	3	0	8	0
Figs	dozen	0	0	0	0	Pine Apples	℔ lb	2	0	4	0
Filberts	℔ lb.	0	9	0	0	Plums	½ sieve	0	0	0	0
Cobs	℔ lb	0	9	0	0	Raspberries	℔ lb.	0	0	0	6
Gooseberries	quart	0	0	0	0	Strawberries	℔ oz.	0	6	1	0
Grapes, hothouse	℔ lb	3	0	8	0	Walnuts	bushel	0	0	0	0
Lemons	℔ 100	4	0	8	0	ditto	℔ 100	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 3—9, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age. Days.	Clock before Sun. m. s.	Day of Year.
3	TH	Royal Society at 8.30 P.M. Linnean Society at 8 P.M.	57.1	35.7	46.4	5 33	6 34	2 18	3 51	13	3 24	94
4	F	Royal Institution at 8 P.M.	56.7	35.7	46.2	5 31	6 35	3 43	4 9	14	3 7	95
5	S		57.0	36.7	46.0	5 29	6 37	5 11	4 25	15	2 49	96
6	SUN	PALM SUNDAY.	57.0	36.9	47.2	5 27	6 39	6 41	4 42	○	2 31	97
7	M		57.7	36.8	47.3	5 24	6 40	8 14	5 1	17	2 14	98
8	TU	Royal Horticultural Society—Fruit and Floral Com-	56.1	35.8	46.0	5 22	6 42	9 47	5 24	18	1 57	99
9	W	Newcastle-on-Tyne Spring Show. [mittees at 11 A.M.	55.0	35.3	45.2	5 20	6 43	11 14	5 54	19	1 40	100

From observations taken near London during forty-three years, the average day temperature of the week is 56.5°; and its night temperature 36.1°.

AURICULA PROTECTION.

NOW is the time when we Auricula growers are pausing with admiration seeing how vigorously our favourites are pushing along, healthy in growth of heart and truss, repaying all the care and attention bestowed upon them in duller times; yet idleness will not do. Now for the attentive watering, now for attention to the overcrowded truss, and now, too, for the friendly invitation to come and share in the floral treat.

In the Journal of April 26th, 1877, your correspondent "D., *Deal*," whose articles are always so welcome, spoke of having advertised his flowers, and, following his example, I also last year inserted a short advertisement in a popular local newspaper inviting all lovers of spring flowers to come to my garden and see my Auriculas, &c., on any Thursday afternoon in April or early in May. Numbers came, and it was an amusing and pleasing sight to see the astonishment depicted on each face as they entered the Auricula house, or passed by the seedling frames. "I had no idea they were like that," was the general expression. Many who owned good gardens, many who owned no gardens at all, many who were professed gardeners, many who cultivated small plots of land with vegetables, but all lovers of flowers, few knew what florists' edged Auriculas were, but all were delighted with the brilliant gems of the endless variety of green, grey, white, self-edged, and Alpines. No injury was done; sometimes, indeed, a delicate finger would try the stability of the paste and smudge it across the body colour, and ever and anon a little patch of white farina on the tip of someone's nose would show the flowers had been tested by another organ; but the foreground flowers had been carefully placed as those of least value to bear the burden of inquisitive examination.

I have learned but little of the white woolly aphis of the Auricula roots, but that little I am glad to place at the disposal of your readers. It is very tender and cannot bear touch or disturbance, and the application of a little stiffish brush kills it even more readily than a green aphis is thus killed; while a wash of soft soap and water may pass over its woolly protection and leave it uninjured.

My experience is that the aphis occurs more in pots which have been kept very dry through the winter than on those which are moister, and attention to these facts will, I hope, enable me next winter to get rid of it. I am not much afraid of the injury it can do so long as reasonable attention is given to the plants to prevent its getting a firm hold on the rootlets, for it cannot penetrate far into the soil, but revels in open spaces between the crocks, or between the soil and the pot walls, or on the neck of the plant, where it may easily be dealt with. Prevention is better than cure, and I waited for some time to see if anyone would state in your pages his experience of paraffin on Auriculas, which I rather feared to try. No one, however, came to the fore, so I put about 2 ozs. of paraffin into a gallon of water and mixed them thoroughly together with a garden syringe, and then applied it to the plants.

Where the mixture touched the foliage, or at least the hearts of the plants, I think it has killed them; but the remainder do not appear to have suffered in the least, so that where the watering was carefully administered to the roots only I look upon the experiment as a success, for the pungent searching nature of the paraffin has permeated everywhere and entirely destroyed all trace of the enemy. In the Journal you recommend "AN INQUIRER" to use paraffin in a solution sixteen times weaker than that I name, and if equally effectual it should be safer; but in whatever strength it is used I give this warning—to be careful and not touch the foliage of your Auriculas, to which it is a deadly poison.

I have long used a solution of about the strength I name—viz., 2 ozs., or four tablespoonfuls of paraffin to a gallon of water, to my garden seeds with the best results, and it forms the best preventive I know against the ravages of birds and mice. Last year I saw in a friend's garden a stunted row of Crocuses, and on inquiry was told they had been treated with paraffin. I asked the proportion of water, when the astounding fact came out that they had been well soaked in pure paraffin! and yet the bulbs had survived. But to return to my Auriculas. To-day (March 24th) we are plunged back into midwinter. The wind is blowing half a gale from the east; it has been snowing horizontally and thinly for the last three hours, and icicles 6 inches in length fringe the greenhouse at noonday. The opening bloom, if intended for exhibition, must be protected as far as we can help it from feeling such a check as this implies, or the flowers will cockle and the paste crack, so the frames must be well matted and sheltered on the windward side.

I grow my seedlings, as well as some good varieties which I have in duplicate, in borders more or less protected, so as to save the extra labour of potting them, and here I see the young opening bloom is somewhat injured, so I rig up an extra shelter there also. "Ifs" and "buts" are the excuses of the weak. *If* I owned plenty of all the best varieties in cultivation. *If* I could grow them as Mr. Horner does, and *if* the weather would only be kind, I should win all the first prizes at our coming show. *But* of these crack sorts I have either none or only one tiny bit. *But* I can't grow Booth's Freedom as Mr. Horner does, and as he exhibited it last year (I wish he would tell us how he does it, for I have reason to believe I am not singular in this), and, above all, I cannot command the weather. With regard to this latter it is unwise to complain, for firstly, we cannot alter it, though we may help our plants to bear it; and secondly, snow and ice are nothing new in March—we had it last March, and probably shall again next March; so that those who are prepared to meet the capriciousness and dangers of this unsettled season are least likely to suffer from its consequences on the 22nd of next April.—JOHN T. D. LLEWELYN, *Neath*.

PROTECTION OF FRUIT FROM BIRDS.

"WILTSHIRE RECTOR," Mr. Radclyffe, and others complain of the birds at this time of the year stripping the Gooseberry and Currant trees of their buds. "WILTSHIRE

RECTOR'S" system of tying pieces of string, bast, &c., to the bushes would be somewhat tedious. Owing to my system of pruning I hardly ever knew any of my trees injured by the birds, though during the summer season there are plenty of applicants in the shape of blackbirds, thrushes, &c., for the fruit; but there is a very easy and simple remedy. Grow all Gooseberries and Currants by themselves in squares or parallelograms; cover all the square with old herring nets, which can be bought in most places very cheaply, especially a quality of very fine herring nets, which is used now, and which I find lasts longer, as they are made of superior flax.

The trees can be covered very cheaply. Procure some red deal battens 21 feet long, 7 by 2, cut into three strips 2 by 2¼ inches for uprights, and into four strips for top rails. The posts are 10 feet 6 inches apart, driven 1 foot into the ground, and the top rails nailed on the top. A square 21 feet by 21 feet requires nine uprights or one batten 21 feet only, and six top rails (1½ battens), and will accommodate very easily sixteen trees, and of course the longer the parallelograms, as 42 feet by 21, less uprights in proportion are necessary. I name 21 feet, as it is an usual length for battens, and I find from experience that this strength of top rail is quite sufficient placed edgeways, not flat; two long American wire nails at the top of each upright are sufficient. Another reason for narrow widths is that there is no difficulty in obtaining herring nets wide enough to cover the top and sides, and if pegged to the ground with long galvanised wires, like large staples of No. 12 or 14 wire, no wind will blow the net into the bushes. I always cover rows of Raspberries in this way. The same red batten posts have been down for six or seven years, and now seem quite as good as ever.

Gooseberry trees I grow inside a quarter of espaliers, which are trained on wires round three sides of a plot of garden ground, four espaliers on the narrow end and eight on each side, the other end left open. The whole of this is covered with one herring net. The uprights are made of 2-inch cast-iron hot-water pipes set in stone and bored for straining the wires to; and the espalier fence is 8 feet above the ground level. Angle stays are put at two of the corners, and stays to support the strain at the two end straining posts. This plan might be continued almost indefinitely, and the whole netted over, and bush fruit trees, Currants, Gooseberries, Plums, Apples, Pears, &c., grown between. In the case of the espaliers I only use iron posts at the angles, ends, and intermediately between every four espaliers at the sides, which are only planted 6 feet apart, as the wiring is 8 feet high; but red deal uprights are used the same as the size I mention every 12 feet, or in other words between the alternate iron posts, and a top rail nailed to these, the round tops of the cast-iron posts having pieces of wood fitted in them to prevent the water rusting the base. This top rail stiffens the fence, and from this I tie across the whole from the top of each iron post and wood upright a strong piece of cord. Tarred twine such as is used for garden lines is quite strong enough, and a herring net covers the entire space; this protects the fruit both of the espaliers and of the bushes underneath, and access is had to the fruit by lifting the net at the open end. The trees have only been planted three seasons; this will be their fourth, and they have already nearly filled the space. Several produced fruit the second season and more the third. They are nearly all full of fruit buds now, except one or two of the slower-growing Apple trees. A great many blackbirds and thrushes fall victims even under these circumstances, as they will push their way in under the net, which is pegged inwards with wires, but the four corners are pursed with a loose smaller net, and the birds very rarely get out again. It is extraordinary the great quantity of Currants and Gooseberries that can be grown in a small space in this way; and last year, although there are only 55 small bushes—for they are kept close pruned and Strawberries grown between—we could not consume all the fruit, and hundreds of Gooseberries fell off the bushes at the end of September.

Someone may ask about the nets. I have four large ones, which cost me on the average £1 each, and some smaller. One covers Raspberries, another a quarter of four beds of Strawberries, three rows in each bed, 2 feet apart, paths 3 feet, and about 30 yards long each; and another covers another set of Strawberry beds the same width; the other, the espalier quarter. I buy the nets when I want them of the fishermen when they are overhauling their nets previous to the herring season on this north-east coast of Yorkshire; but I take care to see the whole net spread out on a grass lawn, and not to buy those that are too heavy or too tender. I found nets of this kind very little the worse after five years' use, and the value of the fruit saved may sometimes compensate for their cost in one year, especially in the case of Strawberries and Raspberries. One advantage of the plan is, there is no necessity to take the nets off to gather the Raspberries, Gooseberries, &c. With the Strawberries the nets are lifted up and placed in the central pathway, which is done by two persons, so as not to drag the nets over the Strawberry plants, which often pulls off young green fruit or blossom of the later sorts. I enter into rather full particulars in order that anyone may adopt the system, as I have often been surprised when going into noblemen's and gentlemen's gardens to find they had no efficient way of protecting fruit trees, but only nets thrown over Raspberries, or rows of Gooseberries and Currants, and pulled off to the detriment of the shoots and fruit each time it is wanted. With the present price of wood, iron, and wire such quarters are easily made, and it is far better to plant too close and transplant again if necessary, as the first cost of trees and bushes is not great, and the transplanted trees and bushes if not required would repay the extra outlay by their additional growth. I know I plant closer than most persons, but in this climate the trees help to protect each other in the blossoming season, and by summer pinching and autumn pruning they may be readily kept within bounds for a long time.

I will add some notes another time upon the protection of fruit trees on walls both in blossoming and fruiting season, and of a cheap way of making fruit walls.—C. P. PEACH.

FUCHSIAS.

THAT popularity is a token of intrinsic worth is not always true, but undoubtedly it is so as regards the Fuchsia. It is popular because it is lovely, and its culture is easy and inexpensive, so that every lover of flowers may grow some, even though they be only a few plants on a window ledge. I have seen plants raised from "slips" struck in a pot of soil under an inverted tumbler that were pictures of health and beauty, and not unworthy rivals of others reared in costly glass houses. The Fuchsia is therefore everybody's flower, and yet, unlike many that may be included in this category, we never hear it termed common.

A glance at a plant in bloom conveys to the mind a pretty clear idea of the conditions to be observed in its culture. The flowers come in clusters on the end of each shoot, and a plant in a 5-inch pot with half a dozen shoots makes a good display as a table plant or for grouping with others. Pinch off the top of a young plant when it is 4 or 6 inches high, and a quick growth of laterals will follow. Stopping a second time increases the number of shoots. When larger specimens are required all unnecessary pinching should be avoided, its effect being to multiply, and therefore to weaken growth. Decide upon the number of shoots you require, secure them, and then feed the plant well to impart stoutness and vigour to the growth, and size and beauty to foliage and blossom.

No plants are so useful for a variety of places than such as may be had in 5, 6, and 7-inch pots. Only take stout cuttings, and let them make plenty of roots before disturbing them, and they may go at once from the cutting pot into either size, provided the drainage of the pots is well attended to and plenty of sharp sand is mixed with the soil. The soil should be of turfy loam, plentifully enriched with old manure and sprinkled with charcoal. A few rough pieces of manure placed upon the drainage adds wonderfully to the vigour of the plant. Such manure is not always at the disposal of townspeople; they may, however, readily procure an artificial manure in the form of a dry powder from any nurseryman as a capital substitute to mix with the soil, and also afterwards with the water applied to the roots. In potting press the soil down very firmly, and take care to leave a liberal margin from its surface to the pot's rim to facilitate the watering.

Fuchsias have been found useful for all the purposes that plants in pots are applied to, and they form pillars of beauty when trained up the supports of a conservatory. They are also often trained up the walls and the roof with advantage.

During the last three or four years Begonias have become popular for the flower garden in summer. Why has the Fuchsia not become so long ago? Only a faint conception can be formed of its value as a bedder by those who have never seen it so treated. Should you have some old plants which you intend throwing away after having taken a batch of cuttings from them, refrain from doing so, and make the

soil of a border or bed very rich with manure, turn out the old Fuchsias into it early in May, and you will have a magnificent display of bloom throughout summer and autumn. When the frosts come take up the plants and plunge them in a mass of leaves in any frost-proof building, where you will find them ready to hand when spring arrives.

I have never tried spring-struck plants for bedding, but hope to do so this year, and expect them to make excellent masses, more dwarf and probably a little later than the old plants. —EDWARD LUCKHURST.

BIRDS AND FRUITS.

EVERYONE must sympathise with "WILTSHIRE RECTOR" on the loss of his Gooseberry crop, and I for one rejoice to see how he applies the lash to those good people who, only seeing perhaps half a dozen bullfinches in a season, presume to know as much about them as those who are unfortunate enough to live amongst thousands of the little thieves. It is all very well to talk about frightening away the birds with twine, lime dust, &c.; it may do for a very short time, but as numbers increase our enemies become bolder, and nothing short of death will stay their depredations. One season, six or seven years ago perhaps, I preserved (or fancied I did) the greater part of my buds by syringing limewash over the trees. The same thing was tried the season following, and the birds did not care a bit for it. Soot was then applied mixed with the lime while it was slacking, with the idea that it would be too bitter, but they evidently preferred it bitter. I soon came to the conclusion that it was useless for me to stop here if the bullfinches did; I therefore bargained with a neighbouring gamekeeper to give him sixpence a head for every one he shot inside the garden, and I still continue that arrangement with profit. Last year seventy-nine were shot and paid for; we also caught a great many by the aid of call birds with trap cages and birdlime, but as this was done by garden men in their working hours they were not specially paid for and I kept no exact account. The year before last they were counted, and, reckoning young birds taken in their nests, we destroyed altogether over two hundred.

When a nest is found it is an easy matter to catch the old birds, either by putting the young ones in a trap cage or by making a tempting perch near the nest and daubing birdlime on it. It is of little use destroying a nest without destroying the old birds, for they will build again directly, and in the ordinary course of things I believe they bring up more than one family in a season, as we often find their nests plentiful very late. The remedy "WILTSHIRE RECTOR" proposed will no doubt partially answer for Gooseberries, but what about Pears, Plums, and Cherries? Bullfinches here take the buds of the Medlar first, indeed this tree is the test of their presence; they also take those of the Quince, Hawthorn, and Pyrus japonica. For some reason they have not as yet been troublesome to me this season, although I know there are many hundreds of them within a mile of the garden. They do not generally attack the buds till swelling commences. For several years now owing to mild autumns buds have pushed a good deal before Christmas, this season was a happy exception. Hardly any movement was visible till February, in which month if the weather is favourable match-making commences, and the birds are more likely to stay in the woods and shrubberries where they can select places for building. A spell of hard weather, however, is apt to bring them back to the garden at any time, and "WILTSHIRE RECTOR'S" absence for only a "parson's week" unfortunately happened to occur exactly at such a time. Had "WILTSHIRE RECTOR" been at home when the mischief was commenced I have no doubt he would have made a closer acquaintance with the "dear" birds.

As a genuine lover of the feathered tribe "WILTSHIRE RECTOR" refuses to throw off any of his pets till they have proved their unworthiness, and I am therefore not surprised to see that he defends the hawfinch. This is not a common bird here by any means, but we generally have one or two pairs in the summer; and if there is a new kind of Pea on trial that we particularly wish to save, Mr. and Mrs. Hawfinch are sure to do their best to frustrate our object. There are no other birds with which I am acquainted that will clear a row of Peas so quickly. I understand they prefer green Peas to anything for feeding their young.

Goldfinches are still tolerably plentiful here, and they can never become too numerous. I do not find that tomtits take buds. I am sure one of the varieties, a large one, takes a great many insects, but another one, which I think is the smaller tit, is the most mischievous in summer for pecking holes in the Pears; indeed a Pear here uncovered is never safe after it is half grown, consequently it is almost useless growing standards and pyramids, as they are difficult to cover. Blackbirds, where they abound as they do here, are very destructive in summer to small fruits. I love the blackbird, but he is a great thief, much more so than the thrush, and he does not hunt for snails as the thrush does.

Fruit trees of all kinds were never more promising than they are this year. So far the weather has been seasonable; we have had a real winter, now we pray for a real spring and a genuine summer.—WM. TAYLOR.

HARDY VARIETIES OF BROCCOLI.

THE present severe winter has tested the hardiness of all kinds of Broccoli more perhaps than any other vegetable of the Brassica family, and it has given us a pretty safe guide for the future. I find that the varieties which endured the winter with the least injury are those with sturdy growths and hard woody stems, on which the frost seems to have had little or no effect. Those the reverse of this are in a state of decay, the frost having most affected them at the base of the leaves—the most valuable part of the Broccoli, as there they are more soft and full of sap, which when frozen expands and ruptures the vessels and tissues. There are different systems of culture which affect the hardiness of the Broccoli, therefore any system that has a tendency to harden the stems and keep them from becoming soft at the base of the leaves must render them more lasting. To produce plants of a hardy nature the seed should be sown outside in an open position, sowing rather thinly. I concur with all that has been said against thick seed-sowing, which cannot be too strongly condemned. As soon as the plants are large enough to handle prick them out at about 8 inches apart, the ground chosen not being too rich. Much has been said from time to time on the heavily manured ground that Broccoli requires. Certainly this holds good for early varieties, but for late varieties that have to stand the winter it is a mistake, as the presence of much manure causes the plants to grow too robust and sappy, and destroys their enduring properties. A system I adopt, which is well known to many gardeners, is partly lifting and laying the plants down in the autumn—a practice which, although it reduces the size of the heads, is often the means of saving the whole crop when otherwise they would be all lost or a great portion spoiled. All those so treated this winter have stood well, and others that were left standing erect have had their leaves broken by the weight of the snow. In the case of those laid down the snow has proved a safe and effectual covering, as it always does to vegetables brought close to the ground.

Amongst the early sorts Snow's and Adams' Early (whites) have stood best with me, Veitch's Self-protecting being injured, also Backhouse's. Of the later kinds Knight's Protecting, Wilcove's Improved, Cattell's Eclipse, and Watts' Excelsior have all stood well. The varieties that have been injured are Leamington, Cooling's Matchless, Dickson's Spring White, and Carter's Champion. The varieties above mentioned have been grown side by side on a south border. A few remarks from some of your readers on this subject would be very opportune, as the season is now at hand for sowing the seeds.—J. LLOYD JONES, *Cheshire.*

FUMIGATING.

A FORTNIGHT ago I had a greenhouse to fumigate, and for this purpose we employ Appleby's compound placed in a riddle. There is a caution on the packet against staying in the house while the tobacco paper is burning, but I used the paper some months ago without receiving any injury, and therefore thought that I might safely do so again, especially as it was necessary to stay near the paper to prevent it from blazing. On the following morning my eyes were much swollen, and towards night they became very red, and, not attributing it to the tobacco paper, I applied a lotion for the inflammation. The next day I was worse and could scarcely see, and the third morning I began to feel ill; but the next day I was better, the swelling in my eyes having diminished. Since then I have lost nearly all the skin off my face, neck, and arms, which were the only parts exposed to the smoke.

I should be pleased to know through your Journal how to provide myself with better apparatus, and also the address of

a firm which some years ago sent out a patent machine for blowing the smoke through pipes from the outside of the house. —S. A. Y.

NOTES FROM MY GARDEN IN 1878.

When I stated that my garden contained only two collections of florists' flowers, Auriculas and Gladioli, I had entirely forgotten my two famous beds of Ranunculus which were in great beauty last season; but nothing has more convinced me of the change that has come over the metropolis with regard to florists' flowers than the utter neglect into which this most lovely flower has fallen, and at the same time my own collection shows me how the absence of all recognition of such flowers in the schedules of societies affects their cultivation.

My memory goes back to the days when Groom's of Clapham was the well-ordered home of so many valuable and beautiful collections, and I retain a vivid recollection of his magnificent beds of Tulips and his lovely beds of Ranunculuses. At the dispersion of his collection no one seemed in or about London to have taken them up; and although at that time they formed a very beautiful feature at exhibitions, yet since then they have gone almost completely out of cultivation. Messrs. Tyso of Wallingford for a long time continued both to exhibit them and raise seedlings, occasionally sending blooms up to the shows, as did also Mr. Hooper of Bath; but amongst amateurs they seemed to have been so utterly forgotten that their appearance on an exhibition table created quite feelings of surprise. Some years ago, as I have already mentioned, I purchased in conjunction with my brother Mr. Lightbody's collection. It contained four hundred varieties or professed varieties, and for years I have grown them as a collection, occasionally sending a box of them up for exhibition, but the trouble and expense of keeping the varieties distinct were too much. Moreover, as there was no one else who grew them it was utterly immaterial what they were called, for no one could know whether the varieties exhibited by name were the same as those contained in Mr. Lightbody's catalogue (which no one possessed), and as there were no prizes offered for them I determined last year to throw them into mixture, thus saving myself much trouble, and I believe adding to rather than diminishing the beauty of the beds; but of this I shall be better able to judge after this year's bloom. It would seem almost, too, as if the old breed of flowers for which the Dutch growers were once famous has also passed away. Their Naxaca, Jaune et pompadour, Apollo, and such-like flowers which I remember in my boyish days are fully represented by those in the present catalogues. I am trying this year a few of what are called French varieties of Ranunculus, and shall be able to judge whether they merit the praises bestowed on them.

I do not think that I ever experienced greater disappointment about Roses than last year. The very mild winter, it is true, led me to dread the premature growth which spring frosts might destroy, but this is an evil to which for some years we have been accustomed; nor do I grumble at it. Of course if we could have our own way we should dispense with them; but that there is no climate in Europe better adapted as a whole for the cultivation of the Rose I am thoroughly persuaded, and "intelligent foreigners," who regard our poor little island as always enveloped in fog and mist, have expressed the same opinion. The "Terre des Roses" of Lyons no doubt amply repays the care bestowed upon it, but a few days of its blazing sun completely send them out of bloom. We had a taste of what it is like last year, when that terrible week at the end of June sent everything into bloom with a rush, and our Rose beds, gay one day, were a mass of shattered petals or scorched blooms the next. We did not like it, and yet such is the character of June in the middle and south of France, varied by violent thunderstorms and other eccentricities of climate. The clouds we so much deprecate, the feeble rays of Phœbus Apollo which we think might be a little warmer without detriment, are both favourable to the growth of the Rose, and especially to its successful blooming; and in this I am borne out by the expressed opinion of French rosarians, who, astonished at the long rows of boxes of beautiful blooms at our shows, have declared that their climate produces nothing like them. No; my disappointment arose from another cause, that which has before harassed me, and for which I cannot account, I mean the prevalence of orange fungus. Again I have had to deplore the same dropping of the leaves in the summer and the consequent loss of many plants, for I have found in many instances that the loss of foliage by, I suppose, depriving the plants of one of their legitimate sources of strength, has caused the shoots to die and necessitated their removal. I do not know to what its virulence is to be attributed, unless it be that the soil is light; and yet it is not of a burning character, does not contain sand, but is of a dark alluvial nature. The position where they are grown is open, not surrounded by trees, and I know of nothing favourable to the growth of fungi, and yet I have suffered from it at different times and in seasons when others have been exempt. As to remedies which have been proposed to me for curing it, I find it impossible to give the time to them that they require, and with at the same time but little prospect of success. I have this year added a good deal more loam to the beds, and hope by this means to get the soil into a better condition.

I have already noted my observations on the new Roses of the year, and have little to add from my own experience in my own garden, but one thing has been more than ever impressed upon my mind—the excellence of the seedling Briar as a stock. I have not found, as has been sometimes objected to it, that it throws up suckers; and in the abundance of its roots, and its not too vigorous growth, it affords a valuable stock for sorts which altogether fail on the Manetti, at least with me, for it is remarkable how different are the opinions and experiences of Rose-growers on such points. Not long ago a few of us were sitting together at the Horticultural Club after one of our National Rose Society's meetings and discussing various matters of a rosy character, including La Rose vintage, when I happened to mention the delicacy of François Michelon, that I could never get it to do with me after a year. "François Michelon!" said one or two, "why, it is one of the strongest growers we have." On comparing notes I found that the dissidents had a fine deep loamy soil to work upon, where everything in the shape of a Rose seemed to flourish. These points, not always recollected, will account, I think, for the varying characters given of Roses about which from our own standpoint there would not seem to be any difficulty, and should teach us, I think, to hold our hand a little before condemning opinions which may be adverse to our own in such matters. The same thing may be noted in reference to Strawberries, Potatoes, and indeed most things. Some little matter apparently unrecognisable by us determines the difference, but that the difference does exist is none the less a fact, and it takes years of experience to find out even in any one locality what are the subjects which are peculiarly adapted to it, while oftentimes a mere accident may reveal something not calculated upon. Thus, when I planted Rêve d'Or, a tiny plant out of a pot, I never imagined it would make itself so thoroughly at home as it has done. I have been obliged this year to root out a large plant of Climbing Devoniensis, for I could get no bloom from it, and I am told that there are three separate strains of it—one very rampant like mine, but very scant in blooming; another moderate in growth and floriferous; and a third still more moderate, hardly deserving the title of a climber. Can any of our readers say if this be so or not?—D., *Deal.*

PLANTS FOR ROOF TRAILLERS OR AS TRAINED EXHIBITION SPECIMENS.—No. 1.

Clerodendron Balfourianum.—There is perhaps not a more beautiful flowering plant for the above purposes during the spring and early summer months than this Clerodendron; it is one of the freest growers, and equally as free-flowering as any exhibition plant our gardens possess. Very rarely do we see a collection of stove and greenhouse flowering plants staged at any of the metropolitan exhibitions without seeing amongst them a specimen of this highly attractive variety; its broad and spreading panicles of white bracts from which protrude small scarlet flowers having a charming effect. The cultivation of this Clerodendron is of the simplest character. Cuttings from the young half-ripened shoots strike readily if inserted in very sandy soil; if they can be placed in bottom heat or a propagating frame so much the better, but they can be struck very well in an ordinary stove. When sufficiently rooted pot them singly in a mixture of fibrous turfy loam and peat mixed with sharp white sand to keep the compost open. Some cultivators mix a small quantity of charcoal with the soil, and the practice is a very good one. Ample drainage should be given to each plant, and the compost should be as rough as possible. After potting give the plants a watering to make the soil firm, and place them in a temperature of 70°. The temperature should by no means be allowed to fall below 60°, and if it

should rise to 80° during the daytime so much the better for the plants. During the summer months the young plants grow rapidly, and soon require a shift into larger pots. Fair-sized flowering plants can be grown in 11-inch pots, and even in a smaller size; and the very largest specimens we meet with at exhibitions are growing in 13, 15, and 18-inch pots. When the plants are well established and have filled their pots with roots they may be stimulated by occasional applications of liquid manure. During the early winter months water should be withheld, in order to enable the wood to become thoroughly ripened.

I cannot too strongly impress on all growers of this Clerodendron the importance of wintering the plant in a temperature that does not fall below 50°. Too low a temperature kills many Clerodendrons. I have seen several large plants this winter that have succumbed from no other reason; they were well-ripened, kept dry, and at one time looked very promising, yet they were unable to endure the extreme cold. The fact of their being dry will do them no harm, and according to the season of rest given can their blooming period be regulated.

In the spring when it is desired to start them they should be placed for some time in a vessel of water, so that the soil may be thoroughly moistened; the shoots must also be regulated and tied to a trellis to support them. As the plants progress in growth they will require plenty of water both at the roots and overhead, and if the supply is insufficient the panicles of blooms will be considerably checked.

Clerodendron Balfourianum flowers equally well when planted out in a prepared border of lumpy peat, fibry loam, and silver sand; with plenty of moisture the plants will grow rapidly, and will require fastening to a trellis, pillar, or similar support. As soon as they commence flowering the syringing should be discontinued, but copious supplies of water should be given at the roots. The flowers will be found highly useful for various decorative purposes. Plants may usually be had in full flower in eight weeks after the buds commence swelling. This Clerodendron is remarkably free from the attacks of insects, red spider being the only one that is troublesome, therefore care should be taken to syringe the plants very frequently while in a growing state.—J. W. MOORMAN.

SHADE FOR TEA ROSES—LIQUID MANURE.

"A LOVER OF ROSE SHOWS" asks whether it is advisable to train the Tea Roses Catherine Mermet, Marie Van Houtte, Climbing Devoniensis, Souvenir d'un Ami, and Souvenir d'Elise, among the branches of a Vine or other wall tree in like manner as recommended by me for Maréchal Niel. In reply I would state that it is desirable, more especially for Maréchal Niel, because that variety is frequently wanting in foliage, and being also a yellow Rose a certain amount of shade and shelter appears good both for the wood and for enhancing the colour of the flowers. I have a suspicion that the wood of Tea Roses does not like the baking of a hot south wall, and more than once have noticed the excellent effect of training branches of Maréchal Niel and Cloth of Gold round the end of a south wall to the north side; the same rule holds good for all the strong-growing Teas and Noisettes. But in selecting wall trees for shade I should avoid the Cherry on account of its excessive liability to insect pests, but I have had the Roses worked in amongst Plum and Pear foliage with advantage. I was led to adopt the plan from accidentally finding one of the best blooms I ever had of Maréchal Niel, and which did duty at more than one show, almost entirely concealed amongst foliage in this way. The strong-growing Teas also do well as standards planted somewhat thickly in beds with the branches bent down and intertwined, the pendant blooms overhung by the foliage generally coming finest and best in colour. In reply to the query whether I would prune back closely standards of Gloire de Dijon and other strong-growing Teas planted recently, I should say, Decidedly not, as moderate pruning only is good for Teas at any time.

Bullocks' blood and all liquid manures in a crude and turgid state, even when considerably diluted, are in my opinion most objectionable as tending to sour the ground, and until the ingredients become entirely assimilated by the soil are hurtful if not absolutely poisonous to the tender root fibres. Doubtless blood manure is good for Tea Roses, and it heightens the colour and vigour of the foliage, but applied in quantity it might lead to the appearance of the pink tint in the delicate-coloured varieties. I recollect an instance which occurred some years ago when blood-letting and cupping were in vogue; a medical friend applied blood in a crude state in homœopathic doses to the roots of a white Sweetwater Vine, and the result was the appearance of a reddish tint on the ripening Grapes, arising probably from the excess of iron. For Tea Roses I prefer a liquid *olla podrida* made from Peruvian guano, superphosphate of lime and soot, left to stand until perfectly clear, but where blood manure is preferred an excellent receipe for making it is given in "Hogg's Gardener's Year Book."—T. LAXTON, *Bedford*.

SPRING STRAWBERRIES.

"A KITCHEN GARDENER'S" article on spring Strawberries (page 215), has induced me to send my experience. Runners were layered in 3-inch pots early in July, and afterwards grown in 6-inch pots in a mixture of loam and horse droppings with a slight sprinkling of sand; they soon filled the pots with roots, and in autumn ripened off well. They were placed in a cool house early in December, and while I was confined to my room by illness they were frozen so hard that the pots could not be moved. Some time in the latter part of December a thaw set in, and I gave orders to drench them thoroughly with cold water and cover them over with mats till they were thawed, and the very night after this was done the frost came again very severely, and, the covering being too thin, the soil, pots, and everything about were converted into a mass of ice. As soon as I was sufficiently recovered to walk round the garden I paid a visit to the Strawberries, and when I saw them I was in despair. I thought they could not possibly bear any fruit after that, so I left them as they were. When the time came to start the first batch I had them removed to a dark shed just free from frost, and placed in a tub of cold water for a few hours before being placed in the forcing house. They were rather a long time in starting, but I do not remember ever seeing any do better. Some of them bore nearly twenty fine flowers, which were thrown up 6 inches or more above the foliage, and they are now swelling a good crop of fruit. After this year's experience I shall not protect Strawberries again, but simply plunge them in ashes in an open place where strong winds cannot harm them.—THOMAS ARROWSMITH, *Burley-in-Wharfedale*.

NOTES ON PROPAGATING.

FROM all accounts there have been great losses amongst bedding plants throughout the winter. Our own stock wintered safely, but the first batch of cuttings inserted in February during a few fine days was, through a return of wintry weather and a consequent lack of heat, entirely lost, with the exception of a thousand Lobelias. This has caused much extra trouble since, as I like to propagate early such plants as Verbenas and Ageratums so as to secure a large quantity of stout cuttings in April. If struck in that month and grown on in a rich compost of loam and spent dung, without experiencing any check, they produce the best plants for planting out.

Since the failure in the ordinary propagating pit I have been increasing our stock very quickly in a Cucumber house in a very simple manner. We have a large number of strong evaporating troughs about 3 feet in length made to fit the pipes closely. I turned my attention to these as an efficient means of getting any amount of bottom heat, and I had a number of them filled to within half an inch of the rim with pure silver sand, into which the cuttings were dibbled thickly, the surface of the sand being floated in water.

This plan has proved most successful, roots being emitted in the course of a few days, when the plants are at once pricked off into boxes, the soil in which is previously well warmed, and a sprinkling of sand on the surface, gives the young plants a ready start. This mode of propagating soft quick-growing plants consists in merely keeping the cuttings in an equable moist warm condition, the only use of the sand being that of keeping the cuttings in their places. From this date it will be quite easy to strike cuttings of quick-rooting plants, and to take the strong tops for propagating again in the space of ten days. This has proved such a help to me in raising stock that I have been induced to make this note of it, as there may be possibly some similarly circumstanced who would be glad of a quick and efficient means of propagating this class of plants. It will be understood the plants producing the cuttings are grown in the same temperature as the house in which the cuttings are struck.

I think there is nothing better than a hotbed of dung and leaves from April onwards for cutting-striking. Provided the frame is properly managed, the amount of strong heating

plants that can be turned out in the course of five or six weeks is very great. The surface of the bed I cover with a layer of light open material, and a sprinkling of silver sand is scattered over the surface of that. The cuttings are dibbled in 2 inches apart, and the frame ventilated according to the weather, shading being used in sunshine. The rooted plants can be left in the bed until they are well rooted, increased ventilation allowing the plants to be transplanted into boxes or frames without suffering any check.

I note the following as doing better propagated thus late than if struck earlier in the year—Ageratums, Coleuses, Iresines, Verbenas, Tropæolums, Salvias, and Dahlias. The latter are very generally propagated too early, and kept in consequence thereof in a half-starved condition for weeks. Stubby little growths struck at the time recommended above can be grown on in cool frames and planted out before the plants have become rootbound and stunted in growth. These plants so treated produce much finer and better blooms than do those that have been less liberally treated.—R. P. BROTHERSTON.

MIXED CULTIVATION IN HOUSES, &c.

MUCH may be said in favour of growing mixed collections of fruits, &c., but cannot a little be adduced on the other side? All readers of the *Journal of Horticulture* have not the ability of "A KITCHEN GARDENER" to draw the line between making the most of their houses and indiscriminate crowding. I venture to think the assertion of your correspondent on page 118 is just a little strong. He says, "We are never satisfied unless every corner of our vineries, pineries, Peach houses, &c., is full of Strawberries, French Beans, and plants of different kinds, and the produce is rarely discreditable." Undoubtedly the statement is uttered by an enthusiastic gardener whose writings are always agreeable from their freshness; but enthusiastic writings are occasionally a little misleading.

In these days of cheap glass it is possible that the extreme of exclusiveness in the furnishing of garden structures has been reached, and that mixed houses in large places will be more resorted to in the future than has been the case during the past few years; but is it wise to rush to the opposite extreme? Mixed fruits, &c., in houses may be regarded as a necessary evil rather than a practice to be most desired, and certainly it is not well to recommend it indiscriminately and in all cases. Anyone, for instance, who is thinking of erecting a limited range of glass would be wiser to have several small houses, so as to give in each the required treatment, rather than to build two or three long and lofty houses.

At first sight the system of forcing Strawberries, and the practice of growing plants and fruit in the same house, seems suitable for small places; but is it really so? Have not gardeners frequently to remove a batch of plants—it may be Beans, Strawberries, bedding stuff, Ferns, or in fact anything predisposed to red spider, thrips, or other pests (ripening fruit may prevent fumigation) to another house, either because of their requirements or those of the permanent occupants of the structure? Strawberries may require retarding or the reverse; in either case a change of house is desirable. And is it not a fact that the number of houses available for these changes is in inverse ratio to the requirements? for the more limited the number of glass houses is, so the high pressure or mixed forcing increases. I think most gardeners try, or ought to try, to cultivate such plants and crops that are most required by their employers however limited their glass may be, therefore mixed cultivation is resorted to; and thus we occasionally see the ill effects of its adoption in small places, these ill effects being avoided in larger establishments by change of house or otherwise. I, like many others, am obliged to grow several crops in one house, and I flatter myself that I am successful; but instead of feeling dissatisfied at their absence, it is with a sense of relief that I see the last batch of Strawberries planted out to afford runners for the next season's supply instead of spider for the houses.

No one, I think, will doubt the good intentions of "A KITCHEN GARDENER," and his writings prove his enthusiasm on subjects pertaining to the kitchen garden; but here again, I venture to think, may be found troubled waters for a weak swimmer. I strongly advise any gardener young in charge or in years to be sure he is fulfilling all the requirements of his employer before ordering "seed of the leading varieties [Onions] from about a dozen nursery firms" as "A KITCHEN GARDENER" has done (February 20th, page 131). It is true that your correspondent has not in this case recommended others to do likewise; but in the issue of the Journal of January 2nd, page 5, he writes thus—"I would advise all who take an interest in the kitchen garden to try as many vegetable novelties as they can;" but that advice is qualified, for on the same page your correspondent says, "What I grow myself in the way of Grapes, vegetables, &c., are those that will succeed under good ordinary treatment." But cases and places differ so much, that while "A KITCHEN GARDENER" can experiment to his heart's content for the general information of the community, which information he is ever ready to impart, another may succeed in making an opening for his successor. —RALPH CROSSLING, *Castle Gardens, St. Fagans.*

CHENOPODIUM BONUS-HENRICUS.

THE vegetable quarters in the kitchen garden will this year be rendered vacant through the severe winter they have had to contend with. Broccoli that will stand ordinary winters have been killed this season. The young Cabbage plants that were planted out in early autumn have suffered considerably even in sheltered positions, while many of those pricked out at the base of south walls, which were intended for the spring planting, are dead and others much injured, especially those that were not well covered with the snow. They will be much later than usual, and outside vegetables for a time will be very scarce. Where the Chenopodium or English Mercury has found a place in the kitchen garden it will be found invaluable this year. In some parts of the country this vegetable seems but little known amongst gardeners, while in most parts of Lincolnshire nearly every garden possesses its bed; and to give some idea of how much it is appreciated in that county it is conveyed in early spring, tied in small bundles, and sold as a vegetable in various markets. The plant in early seasons is ready for use in April. The plants I have here are beginning to push their young shoots above the ground; and if mild weather continues they will soon be fit for use. The young leaves will this year form a good substitute for Spinach where the winter supply is cut short through the severe weather.

The roots can be lifted and forced as in forcing Asparagus. Strong heat should be avoided, as a moderate temperature soon induces growth.

Plants of this Chenopodium can be increased either by dividing the roots or from seeds. The ground should be well trenched and manured before planting. The rows are best 15 inches apart, and the same distance from plant to plant. The plants spread quickly if liberally treated, and will soon fill the space allotted to them. It is advisable not to cut too severely in the spring until the plants are well established—say the third year. After the spring supply has been cut the plants should be allowed to grow the same as Asparagus. If the seed-bearing stems are cut off towards the end of July the plants will yield a second crop of young shoots in September; but it is best not to do so, as vegetables are plentiful at that season of the year and it weakens the plants for the spring supply. When the plants are thoroughly established their after treatment is similar to that of Asparagus.—W. BARDNEY.

ROSES—EFFECTS OF THE SEASON AND PRUNING.

I WAS surprised to see "WYLD SAVAGE'S" doleful account of the havoc made among his Roses by the past (?) (I wish I could say so) severe winter. Situated as I am on the top of a hill exposed to the full fury of the east and north-east winds I should have imagined that my position was even a worse one than his; but yet for all that the Hybrid Perpetual Roses here have as far as I can judge weathered the frosts and storms with perfect impunity. A few of the more tender Teas have succumbed, but among several thousands of Hybrid Perpetuals, a thousand of which were transplanted in November, not one has died. The greatest frost to which they were exposed was about 14° on the night of the 11th of January, but as the weather was calm no harm was done. Here, as elsewhere, all the damage resulted from the bitter north-east winds which followed and lasted from the 20th of January to the end of the month. Then a number of the more tender Teas and Noisettes perished; Triomphe de Rennes and Souvenir d'Elise fared the worst. That splendid Rose Madame Berard is more hardy even than Gloire de Dijon, not a shoot of the several large plants I have having been injured.

The pruning of the Hybrid Perpetuals was all finished here a fortnight ago. I cannot help thinking that "WYLD SAVAGE" is making a mistake in delaying his pruning until so late; I

believe that thousands of Roses are annually killed by too late pruning. My rule is, cut if possible before the sap begins to rise. The more dormant the plant is when pruned the less it will bleed and the better it will bloom. Hybrid Perpetual Roses so far south as "WYLD SAVAGE" lives will bleed themselves to death if wounded so late as April. Strange to say there is no great difference in the time of blooming whether we prune at the end of February or at the end of March: the Roses will flower within a week of each other in most seasons, but as to the quality of the blooms the difference is vastly in favour of the earlier-pruned plants; this I have proved again and again. I do not mind even if the pushing buds are a little pinched by frost in April or May, it does not do them half so much harm as the early bleeding.

I never saw the maiden buds remain dormant for so long a time as they are doing this year: on the Manetti they are hardly moving yet, and on the Briar they are quite dormant. There will be few Roses shown except from cut-backs, I should imagine, next summer except at the late shows; but I hope, in spite of the severe winter, or possibly as the result of it, to see some unusually good Roses when they do come.—R. W. BEACHEY, *South Devon.*

GROWING PEARS.

YOUR correspondent "WORCESTERSHIRE RECTOR" arrives, as he says, at self-evident conclusions that climate and soil have very much to do with success. I should say all gardeners will agree with him, and also that the last two seasons we have not had the climate, and therefore no success. In the course of your correspondent's remarks he contrasts the western side of the Malvern Hills unfavourably with the eastern as to growing fine fruit. Now we Herefordshire men have an idea that we can grow Apples and Pears. Tell it not at Eastnor that Mr. Coleman cannot grow fine Pears; or at Hatfield, laid out by Donald Beaton, and where he lived several years, with, perhaps, the finest soil and climate north of the Thames; whisper it not at the Woolhope Club that a Malvern parson has hinted that we cannot grow Marie Louise Pears.

Here at an elevation of 400 feet above sea level, with a shallow clay soil close on the water stone, we have eighty Pear and sixty Apple trees; the Pears mostly good sized bushes, about thirty years' growth, a few espaliers and large trees, and we think we usually grow good fruit when the sun will give us heat and brightness. Last season we had a small crop fairly ripened, two years ago nothing. Our Joséphine de Malines, of which we have the greatest number, have not fruited for two seasons. We have Marie Louise on a wall and as pyramids; both succeed well, no doubt having the finest flavour on the wall. Our other best Pears are—Williams' Bon Chrêtien, Beurré d'Amanlis, fine; Maréchal de Cour, Comte de Lamy, very fine; Soldat Esperen, Albertine, Urbaniste, Duchesse de Mars, L'Orpheline d'Enghein (Beurré d'Aremberg), Broom Park, Alexandre Lambré, Beurré Navez, Van Mons Leon Leclerc, and Belle de Noël.

The sorts we have tried and discarded as not worth growing or not succeeding are Louise Bonne of Jersey, Duchesse d'Angoulême, Duchesse d'Orleans, Colmar, Shobden Court, Winter Nelis, Easter Beurré, Beurré Rance, Beurré Diel, Napoléon, and Citron des Carmes. Though we persevere it is seldom we have a Jargonelle of good flavour. We find Pear trees like a stiffer soil than Apple trees.—LEDBURY.

THE WEATHER IN SUSSEX.

THE weather has recently been most unpropitious for gardening and gardeners. Easterly winds of the most piercing character and drifting snowstorms have prevailed. We have excellent boilers and plenty of piping, yet the houses are about 10° lower than they were a week ago, and with pipes hotter than usual. I pity those with badly constructed or old houses, and an inefficient heating apparatus, who are in the middle of their forcing. This is a winter that will be remembered by most gardeners both for the severity of the frost and the almost total absence of the sun. Everything will be late though started as usual, and no amount of firing will compensate for the deficiency of sun heat.

The fruit trees out of doors that I have seen look very promising, but I expect some severe frost about the beginning and third week of May. At 6 P.M., on looking through the houses, I found the highest temperature in the early vinery and Cucumber house was 68°; with this, the wind so cutting, I was perfectly satisfied. I am no believer in fixed temperatures. When going round I very rarely look at the thermometer, being guided by the heat of the pipes. At 10 P.M. the temperature was 60°. As a rule I make up my fires at ten o'clock at night, knowing that it is early in the morning when the most fire is wanted.

As far as I can see the winter has had but little effect on evergreens in this neighbourhood, but the reverse is the case with bedding plants kept in amateurs' small glass structures, and in some cases even where a paraffin lamp has been used great destruction has ensued. In all probability after the May frosts we shall have a fine growing summer to compensate for the long dreary winter.—STEPHEN CASTLE, *Worthing.*

SNAILS AND INSECTS IN THE SUMMER OF 1878.

INSECTS in our little corner of Lincolnshire were innumerable last summer. Snails were continuously gathered (into scuttles with salt) by all hands about the house, and still there was little appreciable difference in their numbers. They hung in clusters from the leaves of the Apple trees, often rinding our best specimens of Apples, as well as Apricots and Pears. As to slugs, had I not been afraid of the duck's "foot," I really would have had a tame duck to keep them down.

Stocks were all but destroyed by turnip fly. Hardly a plant of Convolvulus major escaped, and Zinnias suffered severely, although frequent dressings of lime, soot, and waterings of diluted paraffin were applied. Caterpillars (hairy brown), darkened the bough of a dwarf Apple tree; we removed it entirely and hand-picked the rest of the tree. Two Lord Suffield Apple trees were covered with vermin at the back of the leaves. Amongst the Rose beds we found at least five nests of red ants (the soil is easy to bore). Black-winged ants on two occasions came down the chimney of a room in clouds, just as they did in a hot summer some seasons ago. Earwigs and spiders were in legions, the last in variety, the handsomest being large and of a rich furry brown with distinct dead white marking in the form of a cross on the back. It was most frequently found on a healthy tree of Beauty of Waltham Rose.

The Roses generally, owing to the rains, made such vigorous shoots that the aphis appeared to crowd the tips after each fresh growth, and could hardly be kept down by constantly brushing them off. I am afraid I have already taken too much of your valuable space, but I should like to ask if I am correct in observing that snails, earwigs, and spiders go in pairs; where one is found the companion will not be far off and should be searched for. As yet there has been little opportunity for noticing how the frosts we have experienced have affected insects. Black spiders, however, are numerous and lively on the walls and in the manure round the Roses.—A. M. B.

NOTES AND GLEANINGS.

THE Council of the ROYAL HORTICULTURAL SOCIETY have determined, instead of balloting for plants as hitherto, to allow Fellows to select for themselves any plants which they may desire to cultivate, and which, being the legitimate property of the Society, the Council are enabled to distribute. Where it is not possible to supply a specimen immediately the Superintendent will do his best to propagate one without delay. At the present time many species of Ferns, Palms, alpine and rock plants, succulent and herbaceous plants, also bedding plants, some small Conifers, &c., may be spared for distribution, and the Fellows are particularly invited to visit the Gardens at Chiswick and choose for themselves from the plants which can be distributed such as they may desire to cultivate. Four-guinea Fellows and forty-guinea life Fellows are entitled to select thirty plants, and two-guinea Fellows and twenty-guinea life Fellows half that number.

—— THE Spring Show of the NEWCASTLE-UPON-TYNE BOTANICAL AND HORTICULTURAL SOCIETY, which opens on the 9th inst., is expected to be both extensive and excellent. The schedule is very extensive, numbering ninety-two classes, and the amount offered in prizes is nearly £175. Besides prizes offered for bulbs, they are provided for forced shrubs, also for Auriculas, Primulas, Wallflowers, Polyanthuses, Pansies, Hepaticas, &c.—indeed, for all spring flowers that can be produced at this season of the year. Prizes are also provided for epergnes and bouquets. The schedule is the most comprehensive of the kind that has come under our notice, and we trust

the exhibition will be a successful one. Mr. J. J. Gillespie is the Secretary.

—— We have received a letter from Mr. Wills in which he expresses his deep regret that it has been decided not to hold an International Horticultural Exhibition in London in 1880, and he still hopes that Her Majesty's Commissioners will themselves carry out the arrangements for this most important exhibition, and if they do not feel disposed to do so on their own responsibility there are plenty of gentlemen (not strictly horticulturists), who would speedily guarantee fifteen or twenty thousand pounds; and if there be no other means of attaining this end, and Her Majesty's Commisioners will let the Gardens, Arcades, and Albert Hall for the purposes of an international show in 1880, Mr. Wills has no doubt that he can find gentlemen willing enough to furnish the required amount for the purpose, and he trusts a large meeting will shortly be held, and that the general and predominant feeling will be to push this proposed Exhibition to a successful issue with might and energy.

—— The finest Black Prince Strawberries that we ever saw in the month of March have been sent to us by Mr. Muir, The Gardens, Margam Park, Glamorganshire. Rarely have we seen finer fruits grown in the open ground, and never have we seen fruit better coloured when ripened under glass: the flavour also is excellent, being remarkably full and rich. Mr. Muir has good reason to speak approvingly of the sometimes slighted Black Prince when he can produce on each plant from twenty to thirty of such fruits as he has submitted to us. Mr. Muir attributes his success to a course of generous culture throughout the entire period of growth—the somewhat popular process of drying and resting, which is sometimes overdone, not having been resorted to.

—— Small half-standard plants of Indian Azaleas are now about the most gay and popular plants that are provided for the adornment of metropolitan homes. The plants are imported from the Continent by thousands, and are flowered in 5 and 6-inch pots. Several varieties are grown for market purposes, but few, if any, are in greater demand than the double white A. Borsig, and the glowing floriferous rosy-pink variety Punctata rosea. This is a great favourite with London plant purchasers, and is sold in greater numbers than perhaps any other variety—a tolerably good test of its decorative value.

—— The greenhouse at Kew is at present very gay. Interspersed with Cinerarias, Crocuses, Cyclamens, Azaleas, Hyacinths, Dielytras, and Deutzias on the side stages we noticed some remarkably bright and well-berried Aucubas, good plants of Hebeclinium ianthinum, with large heads of their pale lilac flowers; and Rhododendron cardinalis, the massive light purple heads of which appeared to great advantage. Kalmia latifolia had a pleasant effect, and Skimmia japonica showed numerous red berries amidst its foliage. Chorozema spectabilis is now covered with bright and pretty flowers, the lake-tinted alæ contrasting with the orange standard. Eriostemon capitatum, one of the best of this excellent genus, has its white flowers now at their best. Tetratheca hirsuta is a charming New Holland plant with pendulous pinkish purple blooms and linear hirsute foliage. It was introduced about 1843. Hedaroma fuchsioides is now bearing its curious reddish-coloured drooping flowers, and Triteleia uniflora is also very pretty. On the rafters Hibbertia dentata is showing its yellowish blooms amongst the extremely dark foliage. In the central bed Rhododendron ciliatum has a very fine appearance; the flowers are large and tubular, three or four in a head, of a delicate pinkish white colour, the outer part of the corolla being more deeply tinged; the leaves are elliptical and ciliated. Acacias are also now in their prime, very many species flowering profusely.

—— Referring to Her Majesty's visit to Italy the *Daily News* correspondent thus describes Isola Bella:—"The ablest Lombard architects were employed in erecting its palace and gardens. For the Citron plantation which adorns it there was erected a pyramid of ten terraces 100 feet high upon the gneiss and mica slate formation, the earth required for these terraces being brought from the mainland and constantly renewed. At the corners of each terrace, which is tabular in form, are ornamental pillars alternating with obelisks, and on the summit is a colossal unicorn displaying the armorial bearings of the Borromei. The greater part of the island was converted into a garden, to which all the advantages of the insular position lent themselves delightfully. Only evergreens, whether trees or shrubs, were chosen, the highest for the northern margin of the island, the lowest for grottoes. Scotch Firs, Pines, Cedars, Cypresses, Magnolias, Yews, Myrtles, Camellia trees, and a giant Laurel, on which Napoleon before Marengo carved the word *battaglia* (battle), alternate with the growth of all countries—the Syrian Hibiscus, the Tobacco plant, the Mahonia aquifolium, the Camphor and Sassafras trees, Cactuses, Aloes, Fuchsias, Mesembryanthemums, and Yuccas. The French rococo style of the period is every where predominant. The Myrtle, Orange, and Citron trees are bent and twisted so as to describe dainty minuet figures; the Cypresses form artistically labyrinthian valleys."

—— During March an attractive hardy shrub has been blooming in Kensington Gardens—viz., Rhododendron dauricum. The foliage is small and dark green, the flowers purplish, bearing a resemblance to Azalea amœna, of which indeed the dwarf compact habit of the plant forcibly reminds us. It is a native of Siberia, and was introduced in the year 1780. We also recently noticed a bed of it in Messrs. Veitch's Coombe Wood Nursery, and a group also of the still finer variety Early Gem, that was raised at Exeter by the late Mr. James Veitch. Early flowering and perfect hardiness combined are sufficient to recommend these dwarf shrubs for extended cultivation in our climate.

—— In a suburban garden plants of Skimmia japonica well covered with their bright red berries have entirely escaped the ravages of the birds during the severe weather we have experienced this season; while Hawthorns, Mountain Ashes, and Hollies are nearly stripped. This is more remarkable from the plants occupying a somewhat exposed position. Have any of our correspondents observed that the berries of this useful dwarf shrub are not eaten by birds?

—— With all admirers of greenhouse plants Coleonema rubra should find a welcome home. The leaves are acicular, dark green, and thickly placed on the stem; the flowers small and bright pink, borne singly on short axillary peduncles. Its habit is somewhat loose, but by carefully training to thin stakes it may be brought into a very fair shape. Like other Rutaceous plants from the Cape of Good Hope it succeeds well in sandy peat mixed with a little turfy loam. Cuttings from the young branches strike readily in sand under a bellglass.

—— Writing to us on paraffin as an insecticide Mr. B. Cowan wishes to know if any of our correspondents have observed any injury from a repetition of using the oil. He has used it at frequent intervals during the winter at the rate of one tablespoonful to four gallons of water, thoroughly mixing with the syringe, and it has always been effectual in killing all kinds of insects; but latterly he finds the leaves are falling off the Crotons. He has an idea that paraffin is not safe to use on thick-leaved plants, and he thinks when applied frequently to such plants as Camellias and other coriaceous-leaved plants that it is deleterious.

—— In Mr. Barr's trial grounds at Tooting one of the most charming of hardy spring-flowering bulbous plants that has come under our notice is now flowering—namely, Chionodoxa Luciliæ. Several bulbs have been placed in a pot, and the pot plunged in a bed with Scillas. The Scillas are extremely attractive, but more charming by far is the lovely Chionodoxa. The pot contained thirty flowers. They are about 1½ inch in diameter; the prevailing colour is a rich azure blue, the lower half of the petals being white. The plant is evidently quite hardy, and can scarcely fail to become one of the most popular of dwarf early-flowering plants. This pretty spring gem was introduced by Mr. Maw from Asia Minor, and was recently submitted to the Floral Committee of the Royal Horticultural Society by Mr. Elwes, but not in such condition as to secure a certificate; but had the Committee seen Mr. Barr's example referred to we believe that the honour of a certificate, which this plant merits, would have been accorded to it unanimously.

—— In the same grounds many other early-flowering plants are extremely attractive, including Scilla sibirica, S. bifolia and its variety rosea; a grand and rich mass of Iris reticulata; Anemone blanda, a lovely bright blue; Erythroniums with marbled foliage and large and attractive flowers; various species of Crocus, early Narcissuses, and the rich Sisyrinchium grandiflorum. The flowers, which are about an inch in diameter, are of a satiny purple colour with yellow anthers, and produced on stems a foot high—a distinct and beautiful hardy bulbous plant for the spring garden.

—— Part 7 of vol. v. of the Journal of the Royal Horticultural Society contains proceedings of the meet-

ings held during the last five months of 1878 and in January and February, 1879, reports of the Council and revenue accounts, also reports on the trials of Endives, double-flowered Ivy-leaved Pelargoniums, and Abutilons; descriptions of new plants, flowers, and fruits certificated.

—— No roof plant is more valuable for affording a long supply of sweet white flowers than the well-known STEPHANOTIS FLORIBUNDA. The flowers of this plant are acceptable at any period of the year, but are especially welcome early in the season. We do not remember having seen a plant so profusely laden with flowers at this early period of the year as one now just on the point of expanding in one of Mr. Baring's stoves at Coombe Cottage. At every joint of the old wood, and at every fresh joint made of the new, flower trusses are clustering. The plant is planted out, and its early flowering is attributed to the early growth and maturation of the plant last year. It is thinly trained close to the glass, and will yield many hundreds of trusses of its highly perfumed and wax-like flowers.

—— REFERRING to the mode described by "J. W. L., *Erith*," of DRYING COCKSCOMBS, Mr. G. Hylton states that many years ago he dried them as follows:—"I cut the combs close off by the soil, and held them in my hand as close to a bright fire as I could without scorching them. I dried several, and those that were dried quickest were the best."

—— THE following ORCHIDS ARE NOW FLOWERING AT KEW:—Dendrobium barbatulum, sepals, petals, and labellum pure white, with a few yellow hairs in the throat; Phalænopsis rosea, from the Phillippines, very pretty for a basket; Chysis bractescens, sepals and petals large and wax-like, creamy-white, labellum yellow with brownish streaks; C. aurea Lemminghii, sepals and petals faintly tinged with purple, labellum streaked with purple, the sides reddish, and outer portion yellow; very curious and pretty. Oncidium ampliatum, sepals and petals yellow spotted with brown, labellum bright yellow; very attractive. Vanda suavis and V. tricolor in fine form and colour, also Cattleya Trianæ. Lælia cinnabarina is bright with its orange-red flowers. Dendrobium primulinum has purplish sepals and petals, the labellum with a yellowish tinge and fimbriated. Odontoglossum triumphans very fine, and O. Pescatorei also. The peculiar Oncidium sculpturis has a spike about 5 feet in length, bearing a dozen or more brownish crisped flowers. Rodriguezia crispa, native of Brazil, is very pretty, with five racemes of yellowish-white flowers; an excellent species for a basket.

—— IT may not be generally known that the SHADDOCK, which is now common in the London fruiterers' shops, is produced by Citrus decumana, and derives its name from a Captain Shaddock, who first conveyed it from China to the West Indies. Owing to its thick rind it is said to keep longer at sea than any other species of Orange.

—— AT the show last week at the Royal Horticultural Society MR. WILLS was awarded two gold medals, one for a group of plants arranged for effect, and the other for new and rare plants.

WINTER'S RAVAGES—ROSE REPORTS.

IT is not to be doubted but that gardens will be greatly benefited in many respects by the results of the late many-frosted winter; but what will have been its effect on the Roses? I have been hoping to see notices from various parts, and am glad to observe one this day (March 27th) from Dorsetshire by the practised pen that hails from Monkton Wyld. The picture there drawn is sufficiently deplorable. That useful esculent, the tuber mentioned, is but a sad substitute for Mr. Camm's exhibition Roses. I will hope his Teas will yet recover. Here in Surrey, so far as I can ascertain, under the North Downs, winter's work has not been quite so formidable; but now on the verge of April it is still early to judge.

My Briar standards look aught but happy, but the well-established Manettis have gone through all with great indifference. I was able to prune at my usual time—the first mild weather in March, and they look sufficiently promising. I only wish I had more of them. Very different is the case with all those purchased last autumn; splendid plants they were, upwards of two hundred, obtained from several well-known firms, planted in October, and carefully protected with fern; and now they may be alive or they may not. When I shall be able to prune, if at all, is a most uncertain question. Such a winter as the last is especially unfavourable to every kind of tree removal. Planting-out is most perilous. The Tea on own roots and seedling Briar are killed back to the fern line of protection, but I do not think further. Those on low standards look considerably worse. I have cut back some experimentally, but have not been able to arrive at sound unfrosted wood.

It will be interesting now, if growers will notice, to determine which Teas are the hardiest and stand best. I find Cheshunt Hybrid quite as hardy as old Gloire, Belle Lyonnaise pretty fair, Homère all right, Devoniensis doubtful, Rêve d'Or the same, while Madame Berard I am disappointed with. It seems to suffer considerably from frost, perhaps from its free autumn growth. I have cut back and back with several fine plants and cannot find an untouched portion, though it keeps throwing out buds. Gloire de Bordeaux has lost whole branches, but the well-ripened wood of last year is all safe.

I observe amongst the new Roses Reine Marie Henriette (Levet)—a compliment accepted by the Queen of the Belgians—said to be a red Gloire de Dijon; this seems too good to be true. I shall look for blooms of it with much interest during the season.—A. C.

YEWS IN CHURCHYARDS.

THE Yew (Taxus baccata), so celebrated in our own country for its churchyard associations, and for its being employed in the manufacture of bows and weapons principally used by our warrior ancestors before the introduction of fire-arms, has fewer legends connected with it than might be supposed. The custom of planting Yew trees in churchyards has never been satisfactorily explained. Some have supposed that these trees were placed near the churches for the purpose of affording branches on Palm Sunday; others, that they might be safe there from cattle, on account of their value for making bows; others, that they were emblematical of silence and death; some, that they were useful for the purpose of affording shade or shelter to those places of worship when in their primitive form. Different writers have entered more philosophically into this question, and presume that the Yew was one of those evergreens which, from its shade and shelter, was especially cultivated by the Druids in their sacred groves and around their sacrificial circles; that when Christianity superseded Druidism the same places were chosen as the sites of the new worship, and that in this arose the association of the Yew tree with our churches and churchyards. It was also employed in funerals ("by shroud of white, stuck all with Yew.") In some parts of England dead bodies were rubbed over with an effusion of its leaves to preserve them from putrefaction, and many of our poets allude to its connection with ideas of death. According to Pennant's "Scotland" (vol. iii., page 25, 4th edition) the Yew by our ancestors, for a classical reason, seems to have been planted among the repositories of the dead, and they had also a political one for placing them about the houses. In the first instance they were the substitutes of the Incisa Cupressus, in the other they were the designed provision of materials for the sturdy bows of our warlike ancestors. Nature, who speaks to our eye as well as to our ear, paints the Yew with gloom, and we see at a glance the propriety of planting it in churchyards with respect to poetic sentiments as well as to its former warlike utility. Tennyson imagines man's last foe (death) as "walking all alone beneath a Yew." The "In Memoriam" of Tennyson describes the Yew at the "lychgate:"—

> "Old Yew, which graspest at the stones
> That name the under-lying dead,
> Thy fibres net the dreamless head,
> Thy roots are wrapt about the bones," &c.

—(*Science Gossip.*)

PRUNING NEWLY PLANTED FRUIT TREES.

IN answer to "IGNORAMUS" in your impression of March 20th, I would recommend him to take the advice of his friend who tells him "to prune hard as you would an established tree;" because when trees are taken up to be replanted they lose a great portion of their roots, and when these are greatly reduced the head of the tree ought to be reduced in proportion, and you thereby do not lose a twelvemonth in forming the tree. A tree left the first year without pruning throws all its energy into its irregular and disorderly branches, consequently you have very little growth the first year, and in some cases scarcely any. I advise "IGNORAMUS" to eradicate all suckers from the roots and stem, and prune off all shoots of rambling growth, and reduce the head to somewhat of the form desired. With early planting in autumn, mulching in winter,

and guarding against drought in the summer by watering when necessary, the trees themselves will appreciate the kindness and reward you with healthy growth.—MATTHEW BALLS.

CARPET BEDDING.

WE here give another of Mr. Graham's designs for a carpet bed, an exact copy of one which he formed last summer at Hampton Court, and one that attracted much attention. As we previously noticed, one object that Mr. Graham never loses sight of is the value of plants which are hardy, or which only require the protection of a cold frame, and he thus shows many admirers of this charming style of flower gardening that they may with the aid of some cold frames and a moderate extent of warm pits be able to reproduce such designs which we occasionally place before our readers.

In the design submitted (fig. 35), the author has departed from his usual style by enlarging the groundwork area, and the lengthy proportioned figures, with their graceful curves and warm tone of colouring, appeared in bold relief. The figures of two serpents were formed to balance the heavier massing. The rainbow sides of the two monsters were ably represented by Alternanthera amœna, the spinal column by Mentha Pulegium gibraltarica, while a single compact plant of Sempervivum californicum formed the eye of this vegetable saurian. Here we may fairly ask the question, How far may we go in borrowing figures from the animal kingdom to represent the various designs of carpet bedding? Not far we fear, as outside the lizard family most are of harsh angular outline. Mr. Graham introduces with charming effect as a groundwork Achyrocline Saundersonii, a shrubby plant of the Lavender family. If cuttings are inserted in a cold frame in autumn and treated precisely like those of shrubby Calceolarias they will strike readily. This will be found a valuable hardy

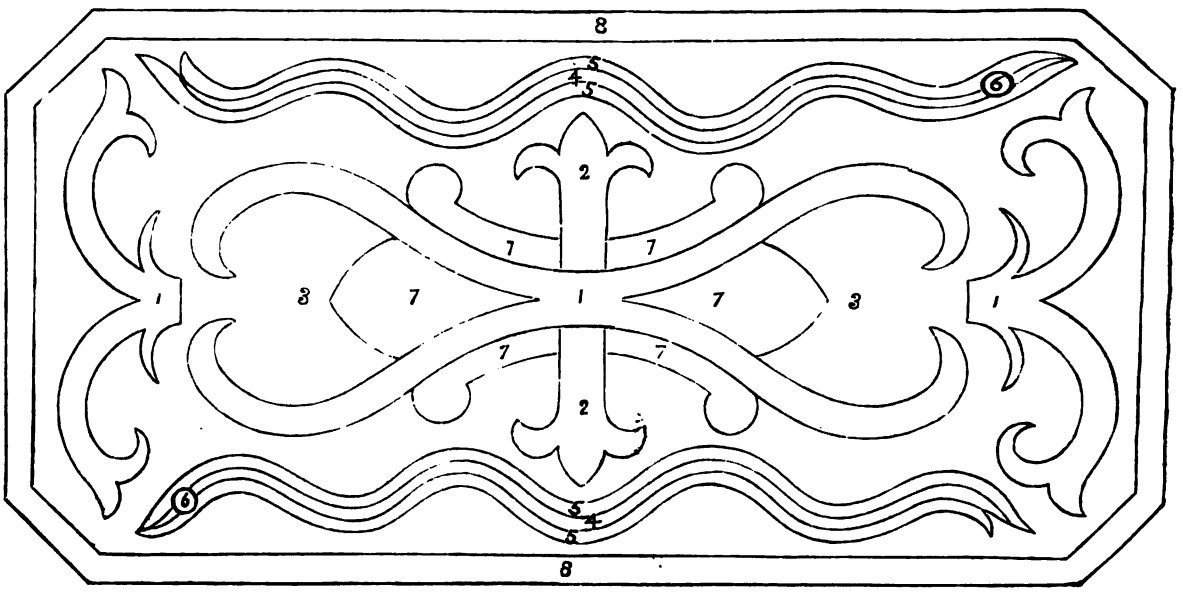


Fig. 35.

1, Alternanthera paronycholdes major
2, Iresine Herbstii
3, Achyrocline Saundersonii
4, Mentha Pulegium gibraltarica
5, Alternanthera amœna
6, Sempervivum californicum
7, Pyrethrum, Golden
8, Sedum glaucum

addition to the carpet bed, and a plant which stands clipping admirably. The amateur with limited means of wintering bedding plants will find Nos. 4 and 8 especially valuable, as they are perfectly hardy, with No. 7 nearly so. Thus, with the exception of Iresine and Alternanthera, this effective bed was planted with hardy plants.

GLADIOLUSES AT BISHOP AUCKLAND.

"D., *Deal*," in his notes on page 209 states that he has been informed that many of the spikes exhibited at the above Show came from the south. Your correspondent has certainly been wrongly informed on that point. Lord Hawke used to exhibit some grand flowers from Lincolnshire, but I think he has now given up doing so. From the last week in August onward we have Gladioli in Yorkshire, Durham, and Northumberland I believe quite equal to what they are elsewhere at any season, and to either send them or bring them from the south to Bishop Auckland I am of opinion would more than probably be a fruitless errand, and akin to taking "coals to Newcastle."—JOSEPH WITHERSPOON.

PROTECTING FRUIT TREES.

THE following method of covering to preserve from frost the blossoms of Peaches, Nectarines, and Apricots which we have adopted, though not exactly original, may still be of service to some of the readers of the *Journal of Horticulture*. The material used is what is known as scrim canvas, and can be obtained of any vendor of horticultural requisites. We bought ours in a large roll, cutting it into lengths according to the height and width of trees to be covered. These were stitched together, the upper and lower ends hemmed, a narrow piece of tape added to the former, to which was fastened ordinary brass rings at distances of about 9 inches. Flat iron brackets with a screw hole near the centre were driven into the wall at intervals of about 4 feet immediately under the coping over the trees to be protected. On these were screwed lengths of common weather-boarding 9 inches wide, the thickest part going to the wall, a stout piece of wire being strained along the centre for bearing the blinds. Light poles were then let into the ground 2 feet from the wall, and lightly nailed to the boards behind the wire; these serve the double purpose of preventing the blinds damaging the trees in rough weather, and also for fastening down the blinds. For this purpose tape strings are stitched to the blinds, which serve for tying either to poles or staples at the ends when undrawn. Light iron rods may advantageously be substituted for the wire, and frigi domo for the canvas. We used what happened to be at hand. The cost of a blind 15 feet by 4, including making, rings, and tape, was 6*s*. 6*d*. If a dressing of boiling linseed oil is given before being stored away scrim canvas will last for several years, and will be found sufficient protection from ordinary spring frost.—AN ESSEX GARDENER.

ELÆAGNUS REFLEXA.

THE variegated form of this species, E. reflexa aureo-marginata, is a very handsome shrub. It is perhaps better known by the name of E. japonica, and is employed for clothing low walls in warm positions. We have seen it effectively employed for the purpose named in Messrs. Veitch's nurseries

at Coombe Wood, Messrs. Lee's at Isleworth, and in the Tooting Nurseries. From the latter we obtained the spray which we have engraved on fig. 36. In its fruiting state the shrub is very striking, the fruit being pale red in colour, and retaining the flowers even when the berries are fully ripe. It is singular to note that when vegetation generally was in a dormant state during the extremely cold weather from Christmas onwards until the close of March the fruit of this Elæagnus was steadily swelling to maturity. The plant was in flower at Christmas, and the fruit was ripe on March 10th. The fruit, though somewhat tempting in appearance, is very astringent, and the seed is enclosed in a thick covering of a woolly nature. The shrub is in the open border, but trained upon the wall of a stove, and thus has not only been well sheltered but has probably derived some warmth from the wall; still the swelling of the fruit so rapidly during the coldest period of an unusually cold winter is sufficiently remarkable to be recorded. While the Japanese Elæagnuses are regarded as hardy evergreen

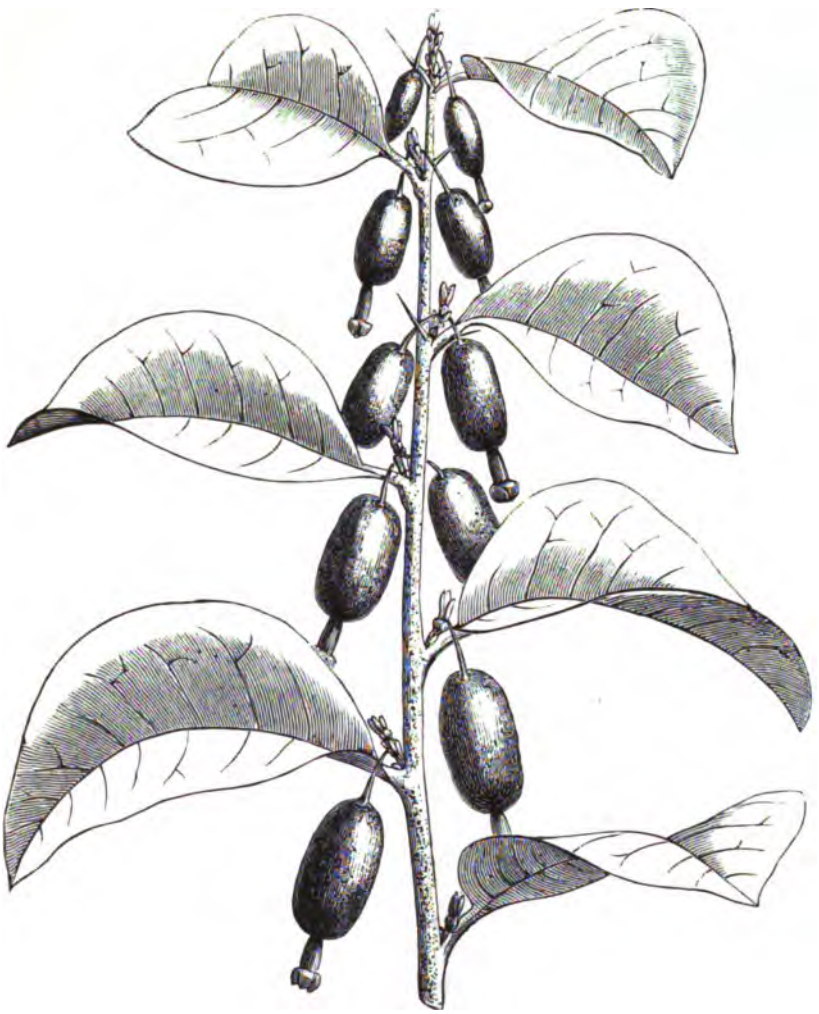


Fig. 36.—ELÆAGNUS REFLEXA.

shrubs, yet they need some protection in cold localities. The variety referred to was introduced from Japan in 1864.

The European Elæagnus angustifolia or Wild Olive grows in mountainous places in the south and east of Europe. Its flowers are powerfully fragrant, and contain in their receptacle a great quantity of honey, which, being procured by distillation, is in many parts of southern Europe esteemed as a remedy in malignant fevers. In the Levant the pulp of the fruit is eaten. E. orientalis has fruit as large as a jujube, used in Persia for the dessert. The American Elæagnus argentea or Silvery Berry is an attractive deciduous shrub with glistening silvery leaves, and is quite hardy.

The deciduous species and varieties are increased by seeds sown in spring and by cuttings inserted in the open ground in autumn; the evergreen species by layers in autumn and cuttings under handlights in summer, the young plants requiring the shelter of a greenhouse during the winter.

COTTAGERS' HORTICULTURAL SOCIETY.

It would appear from the inquiry of "A Yorkshire Amateur and Curate," at page 212, that in the locality in which he resides there are many natural advantages towards establishing and supporting a cottagers' horticultural society. Being a purely agricultural district, far from a large town, with plenty of cottage gardens and allotments, and with few recreations, are decided advantages towards its organisation and support. The inhabitants in such a locality will the more readily appreciate any efforts made on their behalf to establish a flower show, and will probably so unite to make

the exhibition day a general holiday. The want of necessary funds would appear to be the only drawback, and without sufficient of these there cannot be any gathering together of cottagers' productions. Still the sum required is not large, if the executive will do all the working part gratuitously and contrive in every form to curtail the working expenses. I compiled a schedule some years ago that answered admirably. It contains thirty-nine classes with substantial money prizes. Very much of this may be struck out if the tradesmen and others in the neighbourhood would offer prizes in kind; for instance, a set of tools, or various household utensils which could be substituted in lieu of the money prizes offered. Again, according to the season of the year some of the classes may be struck out, or if allowed to remain the money would not be taken up, as some of the things would not be in season and consequently could not be exhibited.

I would therefore suggest to "A YORKSHIRE AMATEUR AND CURATE" to call a meeting of his parishioners and announce to them his intention of establishing a society for their benefit, and I am of opinion that if a fee of 1*s.* annually was required of each cottager, in return for which they should receive two tickets of admission and be allowed to compete in all or any of the classes, that the plan would answer. This would give them an interest in the working of the society, and would offer an inducement to others to become members.

The next point is to confer with them when is the best and most convenient season for the exhibition day. It ought to be held when the gardens and allotments are likely to be in their greatest perfection, and when there is the greatest profusion of vegetables. This being fixed, the schedule of prizes should be arranged and printed in the form of small handbills, with the rules for the exhibition, the schedule of prizes, the date of the show, and the price and time of admission. Many rules are not required to successfully carry out the working of a society of this kind. To any other person but *bonâ fide* cottagers the membership may be fixed at 2*s.* 6*d.* Two or three days' notice should be given to the secretary by intending exhibitors, and all productions should be staged by a certain hour, either ten or half-past ten. Exhibitors and the public generally should be admitted to the show at one o'clock, at which hour all the collections should be adjudicated upon and the prize cards affixed.

For the purpose of simplifying and keeping a correct record of all entries a small book should be previously arranged, with a page or half a page devoted to each class, and as the entries are sent in they should be copied in this book under their respective headings, and the entry numbered in each class in the order in which they are received. Have previously printed a quantity of moderately stiff cards about 5 or 6 inches square with the name of the society printed on them, lines being left on each card for the class number, the nature of the production, and the name of the exhibitor. On the back or reverse side merely write in figures the number of the class and the number of the entry copied from the above book. These cards are given to the exhibitor, and he places the proper card the reverse side upwards in front of the collection named thereon. Any entries made but not furnished should have the cards withheld, and struck out from the entry book. It would also be well to arrange the collections of each class consecutively as numbered in the schedule of prizes.

Judges can generally be obtained by soliciting the assistance of some experienced gardener in the neighbourhood or an established nurseryman, who will generally be found willing to give the benefit of their experience on such an occasion gratuitously. Have everything neatly arranged by 11 A.M., then with the judges commence the inspection. By the entry book you will be able to see at a glance the number of competitors in each class, and to point the collections out readily and without confusion to the judges. These gentlemen will merely mark the card first, second, or third as the case may be, and you at the same time mark the name corresponding to the number of the entry in a similar manner. An assistant should immediately follow the judges with some thin slips of coloured papers with "first prize," "second prize," and "third prize" printed thereon, and gum one of these on each successful competitor's collection. The judging being completed the public can be admitted, and instead of the loud strains of a brass band (for which a schoolroom is unsuitable), a piano or harmonium would assist in enlivening the proceedings; but most of the exhibitors, especially the prizetakers, would be too engrossed to take much notice of the music.

If time can be spared, a tabulated form of the list of awards posted up in a conspicuous place is well worth the trouble of doing. The most important of all is the speedy payment of the prize money; if it is convenient the same afternoon is the most agreeable time to those that have obtained the holiday to exhibit. Sometimes the lord of the manor or some other gentleman of position will perform this work, accompanying it with a few kindly words which are remembered, and will bring forth fruit another year. The following is the schedule referred to:—

Class open to cottagers only who are *bonâ fide* labourers or mechanics, and reside within the district of ———— 1, Best kept cottage garden, attached to the cottage and not to exceed 30 rods. 2, Best kept garden allotment, not to exceed 30 rods. 3, Collection of vegetables, six sorts. 4, Collection of vegetables, four sorts. 5, Collection of Potatoes, not less than six sorts. 6, Dish of cooked Potatoes, twelve kidneys. 7, Dish of cooked Potatoes, twelve round. 8, Dish of kidney ditto, white, twelve. 9, Dish of round ditto, white, twelve. 10, Dish of kidney ditto, red, twelve. 11, Dish of round ditto, red, twelve. 12, Dish of Peas, thirty-six pods. 13, Dish of Broad Beans, thirty-six pods. 14, Dish of Scarlet Runners. 15, Three Cauliflowers. 16, Three Cabbages. 17, Two Vegetable Marrows. 18, Bunch of Carrots. 19, Bunch of Turnips. 20, Twelve Onions. 21, Three Cos Lettuce. 22, Three Cabbage Lettuce. 23, Twelve sticks of Rhubarb. 24, Twenty-four Turnip Radishes. 25, Twenty-four Long ditto. 26, Dish of Gooseberries, twenty-four fruits. 27, Dish of Strawberries. 28, Dish of Raspberries. 29, Dish of Red Currants, twenty-four bunches. 30, Dish of White Currants, twenty-four ditto. 31, Dish of Black Currants. 32, Six Roses. 33, Hand bouquet. 34, Three window plants. 35, One window plant. 36, Six Pansies. Three prizes in each class.

Children's Prizes.—To be collected and arranged by children under fourteen years of age. 37, Collection of wild flowers (girls). 38, Collection of wild flowers (boys). 39, Collection of grasses (girls or boys). Four prizes in each class.

N.B.—Exhibitors in Class 1 cannot compete in Class 2 or *vice versâ*, or in Class 3 cannot compete in Class 4.

All roots should be washed and arranged as neatly as possible. —J. W. MOORMAN.

I AM sure many readers must be of opinion that a little space in the *Journal of Horticulture* might advantageously be devoted to answering "A YORKSHIRE CURATE" at page 212 respecting the above subject, as few things are more interesting or do so much good as parish or local cottagers' garden shows. Some people are of opinion that it is only in out-of-the-way districts, where cottagers have nothing to amuse themselves with in the evening, that horticultural shows are needed; but as their influence is always productive of good there cannot be too many of them about large towns and in thickly populated localities.

Apart from attending well to a cottage garden and the satisfactory result of securing a larger and superior quantity of produce, it will be found, as a rule, that the man who takes an interest in his garden never spends much of his time or money in the public house or other questionable places of amusement. This well-known fact should be sufficient in itself to induce "A YORKSHIRE CURATE" and all others of influence to start cottage gardening societies where they do not exist, and support them afterwards as they deserve. Last year there was a cottage gardening society started for the parish of Margam, and from the success which has attended it I should say the manner in which it has been conducted might be imitated by others with the same results.

First it is necessary to form a committee. The members of it should live in different parts of the district which the Society embraces, so as to work up the concern, especially at first: and of course those on the committee are expected to take a keen interest in the matter by encouraging others, raising funds, and growing produce for the show in their own gardens. Five or six of a committee will be enough to manage any ordinary local show, with the vicar as president, a trustworthy man as treasurer, and an energetic person with a good knowledge of the affair as secretary. The last two offices might be combined.

After the committee is formed rules should be made out, prizes fixed, and the whole printed in either pamphlet or sheet form. Printing can be done very cheaply, and it is by far the best if not the only way of making matters plain that all may understand them. Rule 1st may state what the society is formed for. 2nd, the sum payable to become a member. Here

cottagers become members of our Society by payment of 6*d.* annually; amateurs, which include farmers and the better-to-do classes, pay 2*s.* 6*d.* to become members; all members being allowed to compete free of entrance fee, non-members pay 6*d.* for each article entered. 3rd, all productions for competition must be grown by the exhibitor; anyone infringing this rule should be disqualified. Strict attention requires to be paid to this, as those who are inclined to cheat have no hesitation in borrowing other people's produce and showing it as their own, and in some cases they will even buy at neighbouring markets. An effectual way of preventing all this is to have the entries sent in eight or ten days before the show, and during the intervening time let the members of the committee visit the gardens and have all the produce entered pointed out to them. This task will be found more pleasing than troublesome. Where the articles are too numerous to remember their appearance a mark of some kind may be placed on each. 4th, no exhibitor shall be allowed to take more than one prize in each class, as it is not at all encouraging when one man may take first, second, and third prize for the same thing. The more evenly the prizes can be divided amongst all the competitors the better; as when one man takes, say, twenty prizes and another none, the latter, with perhaps a bad or small garden, will soon think it is labour in vain to compete against So-and-so, when only one prize might alter his opinion entirely. Amateurs are those who employ a man to plant their garden and have other advantages in plenty of manure, &c., and it will be found that the productions of this class add considerably to the attractions of the show.

In fixing the prizes the first consideration should be to give the best to the kind of produce most useful to a cottager. For instance, to give 5*s.* for a brace of Cucumbers and 2*s.* 6*d.* for twenty-four Potatoes would be something similar to giving preference to buttermilk before butter. In starting at first, when the exchequer may be low and before people exactly understand what is what, it is well to confine the prizes to a few useful articles, especially in the way of vegetables. Respecting giving them other than money prizes, it is difficult to state appropriate articles, as different tradespeople may give according to their wares.

Last year when our Society was started Messrs. Sutton and Sons, Messrs. Carter & Co., Messrs. Cranston & Co., Messrs. J. C. Wheeler & Son, and Messrs. Dicksons & Co., Edinburgh, all with their characteristic liberality and anxiety to advance horticulture from cottagers' shows upwards, kindly offered prizes in money, plants, and seed, and we found these of the utmost service in both adding to the schedule and bringing forward good competition. This year our special prize list comprises articles from an arm-chair to a set of china, and I have no doubt "A Yorkshire Curate" would find the tradespeople in his parish useful in giving prizes of this and a similar nature. Cheap books on plain gardening practice are appropriate for distribution as prizes; they cost little, and are generally highly appreciated by the recipients. All the gentry in the neighbourhood should be canvassed for a large special subscription of money, and with one thing and another like this I am sure a capital cottagers' show might be got up and successfully carried on in any part of the country.

A tent, schoolroom, or hall are suitable places for holding the show, and the most suitable time to have it for cottage garden produce is some time in August; 3*d.* or 6*d.* may be charged for admittance to the show, members free. Last year we took £9 odd in threepences at the door, and this parish is not the most populous. Prizes should also be offered to the children for the best bouquet of wild flowers. Books, which may always be had from ladies in the parish, are very suitable for these prizes. When special prizes can be had, or the funds will allow, it is a good plan to give two or three prizes for the best cottage gardens.

Music always forms an additional attraction at any flower show, but of course it should only be a secondary consideration. Very often country bands may be had cheaply to perform for an affair of this kind. Time will not allow me to say more at present, but I enclose you one of our schedules of last year and for this season. Perhaps "A Yorkshire Curate" might find them useful if you forward them to him; and should any other of your readers think of starting a similar society it will give me pleasure to forward them a copy of our prize list, as I am of opinion nothing can be too much trouble to promote a cause like this.—J. Muir, *Margam, Taibach, South Wales.*

[The prize list, with another that has been sent, shall be forwarded to "A Yorkshire Curate" if he will send us his full address.]

NOTES ON VILLA AND SUBURBAN GARDENING.

Roses.—Any pruning left uncompleted should now be done, as the season is far advancing. Beds and borders that have been heavily mulched during the winter will present a fresher and neater appearance by having the ground slightly dug over and the manure buried. A better plan for the benefit of the Roses is to cover the mulching over with soil and allow it to remain all the summer.

Roses in pots started into growth during January and February are in a fit state for tying out. This is generally done when the shoots are about 6 inches long. Before the plants were started into growth they were all pruned and the old growths were bent over to induce their breaking well back; these new growths now require a stick to each to lead it in the direction desired. The staking also thins and separates the shoots, admitting air into the centre of the plants and strengthening them. If any shoots are extra strong and are appropriating the support from their neighbours, bending them down will tend to better regulate the growth of the plant. Small Willows are the best sticks for supporting the shoots; they are slender although just strong enough for the purpose required without making the plants look unsightly. Tie neatly, and allow the sticks to remain a few inches longer than the shoot when first tied out, for it will grow considerably yet, and the Rose bud will require supporting. Cow manure and soot diluted with water make a very safe stimulant, and impart vigour and colour to both flowers and foliage. Plants only just started will require frequent careful search for the maggot, which we find more than usually plentiful this season; if it is not soon detected and destroyed it eats out the flower buds and otherwise disfigures the foliage. Mildew is also very prevalent at this season of the year, the cold draughts soon affect the young partially developed foliage. Carefully avoid any draughts, and dust the leaves with sulphur, which will prevent the fungus spreading. Roses in pots require as much air as possible, but on days when cold biting winds prevail it is not wise to admit it unless it is given in such a way as not to come immediately in contact with the tender foliage.

Hyacinths and Tulips that have been allowed to flower without forcing are now in their full beauty, and should have plenty of water and be shaded when the sun is very bright; those that have been forced earlier are in a decaying state and should be removed from the conservatory as soon as they are past their best, their places being filled with other plants just coming into flower. There is now a good variety of flowers to choose from—Deutzias, Spirseas, Lilacs, Azaleas, Epacrises, Cyclamens, Lachenalias, Cinerarias, Primulas, &c., all being in season. These admit of the most effective grouping with the addition of a few Ferns and fine-foliage plants.

The earliest batch of Pelargoniums of both the show and fringed varieties are now fast throwing up their flower trusses, and require assistance by a free use of weak stimulants. Cow manure diluted is very safe and effectual. Later plants that have been stopped should be kept near the glass, and as the shoots grow support them with neat sticks. All these plants are very useful and showy for early summer display.

Fuchsias intended for flowering in June or July should have their final shift; most of the plants will require stopping to cause them to become dense and bushy; encourage growth with liquid manure. Insert cuttings, and pot off those that are already struck; these will make useful decorative plants towards the autumn.

Achimenes, Caladiums, and Gloxinias not yet started should be shaken out, repotted, and started at once in a brisk moist heat; these will be found very serviceable during the latter part of the summer months. It is also the time now to make preparations for next winter's display by sowing Primula sinensis and Cineraria seed. These should be sown in pots or pans, the seed covered very lightly, and kept moderately moist and shaded until the plants are large enough to prick out.

Chrysanthemums are now growing freely, and if not potted out of the cutting pots no time should be lost in potting them in 3 or 5-inch pots according to their strength, placing them in a cold frame, where they should remain for two or three weeks. Pinch the tops of those that are wanted to make bushy and compact plants. Cuttings of some varieties have been scarce until now, but with warmer weather the old stools will throw up new growths, which should be inserted at once.

Allamandas, Clerodendrons, Stephanotis, and Bougainvilleas should now be growing freely. If the plants are not repotted they will require the assistance of liquid manure as soon as active growth commences. They should be kept as near the glass as possible and fully exposed to the midday sun. Many other occupants of stoves and greenhouses will require shade if the days are bright. A blind erected so that it can be easily pulled up and down is the best, but a cheap substitute is formed by mixing whiting and skim milk together of the thickness of paint and applying it with a common paint brush.

Trim Ivy growing on houses and walls to lighten its bulk and

prevent winds from blowing it down *en masse*. Rockeries and ferneries should be freshened and cleaned, the old decayed fronds removed, and also any protection that has been placed over them. Remove also all weeds, and give a covering of fresh soil to improve the general appearance of the rockery.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE protecting material should be removed from Globe Artichokes, and a mulching of manure 2 or 3 inches thick should be placed over the roots and around the crowns. This estimable vegetable is deserving of more general cultivation, as when only plain boiled and seasoned the heads are very delicious. It is necessary that these be large and tender, to secure which young vigorous plants are indispensable, the ground being deeply trenched and well enriched; if the soil be moist all the better, but not stagnant. Young plants of about two years' growth afford the best results. Two, or at most three, years are sufficiently long to retain the plants without shifting them; in fact a new plantation should be made every spring to insure a supply of heads in autumn, these young plants producing heads abundantly the following season. Strong suckers should be detached with a portion of the old roots, selecting pieces with three or four offsets, displacing all above that number, or plant three strong suckers together, planting rather deeply 4 feet apart every way, and mulch at once, affording a good watering if the weather be dry. The planting may be done from now to the middle of the month.

If Seakale be increased from roots, strong healthy portions 4 to 6 inches in length should be planted without further delay 1 foot apart, in rows 18 inches asunder, in well-prepared ground. Where the soil is heavy a good dressing of sand and ashes is useful, and a coating half an inch thick of ashes on the surface is beneficial. Seed may be sown in drills the same distance apart as advised for planting. Continue to plant out roots from the Mushroom house or other place where they have been forced. Prick over the surface where the roots have been forced under pots. Make plantations of Rhubarb, filling any vacancies caused by roots having been lifted for forcing purposes. In many places the roots that have been forced are divided, but they are so enfeebled by the process as to recover slowly. Strong crowns detached from plants that have not been forced are very much better taken off with a portion of root and planted 4 feet apart in deep well-enriched moist soil. St. Martin is the finest of all for forcing, Victoria being large and good, and Monarch (the largest) of excellent quality. Rhubarb and Asparagus intended for forcing next winter must not be gathered from this season, but allowed to grow unchecked so as to secure early-matured growth. Onions of the Tripoli section sown in autumn should be planted out forthwith, but earlier bulbs are had by not transplanting, but thinning the plants to 3 or 4 inches apart, and subsequently drawing every alternate one for early use. The thinnings will, of course, be available for planting if required. Cauliflowers wintered in frames or under handlights should be planted out. They will make a succession to those retained under the glasses, three or four of the strongest plants being grown in each, the plants being earthed with rich compost, and a good watering given if at all dry. We grow a row of Cauliflowers in the alleys of the Asparagus beds, planting 18 inches apart, at which distance they form heads quite large enough for the table. If planted in the open allow 2 feet between the rows, or more distance if large heads are wanted. Plant out Cabbage from the August sowing, also Lettuce.

Make another sowing of Cauliflower, not omitting Veitch's Autumn Giant, Cabbage for autumn and early winter use, Brussels Sprouts, Savoy, and Borecole or Kale. Sow also Broccoli for spring use, such as Penzance, Veitch's Spring White, Cooling's Matchless, Leamington, Lauder's Goshen, and Model. Turnips of the American Strap-leaf, Early Snowball, or six-weeks varieties should be sown in a sheltered border, making a successional sowing of Lettuce, Radishes, Mustard and Cress, the Australian Cress being very useful for salading at this season. In a sheltered situation make a sowing of Celery for late crops. Plants so raised are preferable to those raised under conditions that necessarily cause them to be drawn up weakly. The main crop of Carrots should be sown by the middle of the month. also Beet for an early supply of roots, deferring the principal sowing until early in May, as when sown earlier the roots become too large, and the plants not infrequently "bolt." Similar remarks apply to Chicory.

Sow Salsafy and Scorzonera in deep rich soil, the rows 15 inches apart, placing the seeds rather thinly and covering them about an inch deep. Complete the planting of early and second early Potatoes, and if late kinds are grown they should be planted so as to attain early maturity. There is nothing contributes so much to satisfactory results in Potato culture as a careful selection and change of seed. A sowing of main crop Peas and Broad Beans should be made, also Round Spinach. Sparrows are very fond of the tops of Peas; dust the rows whilst damp with dry wood ashes or soot, and apply the same remedy, or quicklime, for slugs. Jerusalem Artichokes may yet be planted, the sooner the better.

Forcing Department. — Spring-sown Cauliflowers, Brussels Sprouts, Lettuces, &c., should be well hardened off by removing the lights in favourable weather, and when the plants are sufficiently advanced plant them out. Water Potatoes before earthing them, and those that are nearly ready for use keep rather dry, as it improves their quality considerably. Water as required Radishes, &c., with tepid water. Thin out crops of Carrots, supplying them with plenty of moisture. Ventilate freely whenever favourable all growing crops of vegetables which are in frames or pits. Prick out Celery from seed pans, and place the plants close to the glass in no more heat than to keep them gently moving. Pot Tomatoes into fruiting pots, removing all side growths, as one stem is enough for plants in pots. Sow Vegetable Marrow so as to have strong plants for planting in handlights in May; an early dish of these is very acceptable.

FRUIT HOUSES.

Vines.—Although Vines in pots afford creditable crops of early Grapes, better results are often had by planting the Vines out in beds or borders such as are employed for Cucumbers. A span or lean-to house answers perfectly, having borders of 3 to 4 feet in width, and about 2 feet deep, so as to admit of about 6 inches of drainage and 18 inches depth of soil. The Vines being raised from eyes will need to be forwarded in another structure until the Grapes are cut. These being ripe in March or early April will be off by the close of April or early May. The Vines that have fruited are cleared out; fresh soil is placed in the borders or beds, and the Vines that are to fruit the following year are planted at 27 to 30 inches apart. If they have made considerable progress, but are not root-bound, they may be turned out with the balls entire, firming the soil well about them and watering well. If in small pots the roots should be disentangled and spread out. Turfy loam with an admixture of a tenth of lime rubbish is a suitable compost; manure can readily be given as a mulch or in liquid form. The canes being trained near the glass will make short-jointed wood. Almost any amount of vigour can be had by encouraging the laterals, but not allowing them to interfere with the principal leaves, indeed under good treatment they will make canes like walking sticks with eyes like nuts, and being as much under control as Vines in pots they can be matured so as to be ready for starting by late October or early November. By this plan the root-action is considerably extended as compared with Vines in pots. The Vines are taken up after fruiting, as is the case with early-fruited pot Vines, treating them as annuals.

Where new borders have to be made for young Vines they should be proceeded with in dry weather, as the time is at hand for planting. A 6-feet width of border will be sufficient to start with, the depth of border being 30 inches. The roots should be spread out well on the surface and covered with 6 inches of soil, giving a good supply of water at 90°, and mulching with short dung.

Figs.—Surface roots are of the greatest importance in the cultivation of fruit trees, none being more prolific of roots than the Fig; but to keep them near the surface they require encouragement with a dressing of partly decomposed manure, which being given when the trees are fairly moving will be full of active roots (provided it be kept moist, as it ought to be constantly, except when the fruit is ripening), by the time the trees need the most assistance to finish the swelling-off of the crop of fruit. The earliest started trees should have a liberal supply of water, or if not too vigorous, liquid manure to help them to swell-off the fruit. Trees in pots will require to be frequently attended to in the above respects, observing former instructions as to ventilating, watering, syringing, stopping of the shoots, and removing such as are unnecessary, tying-in the shoots as required, but not tightly, or the shoots increasing in size rapidly will be injured. The fruit on the earliest forced trees in pots will be commencing to ripen. Cease to syringe the trees, gradually reduce the atmospheric moisture and increase the ventilation, as a little air admitted constantly will improve the quality of the fruit.

Cherry House.— With the trees heavily laden with fruit the demand for nutriment will be greater, as such trees will be less vigorous than those with a less quantity of fruit; and whilst the former will be benefited by the application of liquid manure, the latter should not have anything stronger than water. A good soaking of those elements most suited to the requirements of the trees should be given, and as often as required, to maintain the soil in a thoroughly moist condition. Inside borders are most suitable for fruit trees subjected to early forcing, as they afford a better temperature, more corresponding to that in which the trees are growing, and rendering the progress of the crop more certain and satisfactory, provided due regard is paid to affording the needful supplies of water. Attend to ventilation and temperature as advised in our last calendar, syringing the trees twice every day, and keeping the surface of the borders constantly moist. As soon as the shoots have made four or five joints they should have the points pinched out so as to form spurs, but those required for furnishing the trees should be tied in position early and be carefully trained-in their full length. Aphides must be kept under by repeated fumigation, as if they obtain much hold they are not only difficult to exterminate, but spoil the appearance of the fruit.

Cucumbers.—We may shortly expect plenty of sun, and after the almost sunless period we have lately experienced it is more than probable the foliage will flag under its influence—an evil which must be obviated by shading with some light material for a couple of hours at midday when the sun is brightest. Assist plants in full bearing with frequent applications of weak liquid manure, and earth up the roots occasionally. Plants in bearing for any length of time should have the old exhausted soil removed with a small fork, not injuring the roots, and replacing it with good rich lumpy compost previously warmed. Thin out the exhausted growths, and encourage fresh bearing shoots. Expel worms with lime or soot water—a peck to thirty gallons of water stirred well up, letting it stand forty-eight hours, then watering with the clear liquid. Subdue canker at the collar and in the old growth by rubbing quicklime into the affected parts. Damp the floor and every available surface at about seven o'clock in the morning and again in the afternoon at three o'clock, syringing the foliage gently on warm afternoons, and keep the evaporation troughs regularly charged with liquid manure. Remove the old growths, and stopping and training must be attended to at least once a week. Maintain the temperature previously advised, keeping up a good degree of heat in pits and frames by the renewal or application of good linings. Train the growths, pegging them down as required, and adding fresh warmed soil to the hillocks or ridges as the roots extend. Be moderate in the application of water, as the nights are as yet cold, and employ thick night covering. Sow ridge kinds for planting under hand-glasses early in May.

Melons.—The earliest plants will have set or be setting fruit upon the first laterals. During the setting period water should only be given to prevent flagging, and the atmosphere should be kept drier, with an increase of temperature of about 5°, a circulation of warm air being conducive to a good set. Fertilise the blossoms every day, pinching out the point of the shoot two joints beyond the fruit. When the fruits are set and have attained the size of a walnut give a thorough watering; in a day or two earth up with rich, turfy, rather strong loam previously warmed, pressing it down rather firmly, and again water. Stop the subsequent growth to one or two joints, removing superfluous growths. If the bottom heat be increased 5°, or to 85°, it will assist the swelling of the fruit, the night temperature 70°, and 75° in the day by artificial means, ventilating from that point, increasing to 85° or 90° and closing at 85°. Apply the syringe moderately at 3 P.M. on bright warm afternoons, damp in the morning, and keep the evaporation troughs regularly filled with liquid manure. Train the growths of later plants regularly, removing at least every alternate lateral, rubbing them off directly they are perceived, the remainder being left at the right and left sides of the primary stem, pinching out the point of the latter after it has extended two-thirds of the required distance, and increasing the supply of moisture both at the roots and atmosphere as the days lengthen. In pits and frames a bottom heat of 80° should be secured to plants that are growing freely; in newly made beds the bottom heat should be about 90°. Renew the linings as required, and employ thick night coverings.

Pines.—Suckers or disrooted plants started in March shift into the fruiting pots as soon as the sucker pots are fairly well filled with roots, taking advantage of the opportunity to replenish the beds if necessary in the case of those composed of fermenting materials, turning over and adding fresh as may be required to secure a bottom heat of about 95° at the base of the pots for newly potted plants. The beds where other plants are plunged should not exceed 90°, as with active roots at the sides of the pots there is danger above that degree of their being injured. Keep the air about such plants well charged with moisture during the time the house is closed, employing no more fire heat than is absolutely necessary to maintain a night temperature of 70° or 75° on mild nights. Ventilate slightly at 80°, liberally at 90°, closing with sun heat at 85°, at which time syringe the plants, excepting those in bloom. Examine all the plants about once a week for water, and when it is required give it liberally.

PLANT HOUSES.

Stove.—Plants that require immediate care are apt to receive more than their share of attention at the expense of those that afford a display in autumn and winter, which must now have attention in the way of propagating. Cuttings of Centropogon Lucyanus when taken off with a heel strike readily in a brisk moist heat. Its deep rose-coloured tubular flowers are very effective. Eranthemum pulchellum, bright blue, and Thyrsacanthus rutilans strike freely from cuttings of the young wood with two joints and the growing point. Plumbago coccinea superba with its bright scarlet flowers may be struck from cuttings of about 4 to 6 inches in length taken off with a heel. Luculia gratissima now struck and kept growing through the season makes good plants for early winter flowering. Sericographis Ghiesbreghtiana cuttings inserted now and grown on, stopping them once or twice so as to induce a bushy habit, are useful in autumn, the bright red flowers being effective. Centradenias rosea and floribunda are very free flowerers, cuttings now struck and grown on make good plants. Dalechampia Roezliana rosea is also a winter, indeed a continuous bloomer of a soft rose colour, and Aphelandra aurantiaca Roezli yields to no plant in fiery orange; both are best raised from seed. Burchellia capensis, a fine orange flower, is not so extensively grown as it deserves. Begonias fuchsioides, B. insignis, B. Saundersiana, B. Ingrami, B. Digswelliana, and B. nitida and the var. odorata, B. hybrida multiflora, are fine if grown from cuttings inserted now, flowering profusely all through the winter, young plants being preferable to old ones. B. Weltoniensis and B. parviflora cuttings now inserted will make good plants for late summer flowering. Poinsettias that have been kept dry to rest them after flowering should now have water, cutting them back if not already done, placing in a growing temperature. There are two modes of growing this fine autumn and winter plant. One is with single growths from spring-struck, also summer-struck, cuttings in small pots, which are the most useful for general purposes; and the other by cutting back some of the strongest of last season's plants to within 6 inches of the pot, placing them in moderate heat—60° at night being sufficiently high, as they are injured by too much heat and by not having plenty of light. We strike our cuttings in the full sun—short stubby cuttings of 3 or 4 inches in length, with a heel of the old wood—and grow the plants in frames after June, maintaining, however, a warm temperature by judicious ventilation, the object being to keep the growths short and stocky, for when drawn they are spoiled. As soon as the plants have broken they should be turned out of the pots, the ball reduced and repotted in good loam in the same sized pots. Such plants being large are fine for conservatory decoration. Scutellaria Moccinianа cuttings placed five or six in a 6-inch pot strike readily in brisk moist heat, and when established shift them into 8-inch and grow them near the glass: in late summer the scarlet heads of bloom are very bright. Franciscea are fine early-spring flowering plants. F. confertiflora variegata has leaves creamy white with very little green. Its purple flowers contrast well with the variegation, and are very fragrant. The almost ever-flowering F. uniflora or Hopeana and F. Lindeniana are worth a place, but F. calycina major is very much the best. Cuttings of the young shoots taken off with a heel strike readily in a brisk heat in sand. Pancratiums, like many other good old plants, have been ousted by newer introductions, being put aside for Eucharises, than which they are even more beautiful and equally sweet, certainly more elegant, and should have a place in every stove. P. caribbæum, P. fragrans, and P. ovatum are superb. Keep a close scrutiny for mealy bug and scale, removing every trace, as attention now will save much after labour. Fumigate upon the first appearance of aphis or thrips, and syringe the plants morning and afternoon.

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

SWEET-SCENTED CYCLAMENS (*E. R.*).—If you will send us your full address, a gentleman who is a lover of Cyclamens will be glad to assist you in obtaining such varieties as you require.

REMOVING GREENHOUSE (*T. H.*).—V. is a doubtful case, and you had better consult a solicitor.

PROTECTING THE TRUNKS OF TREES (*A Perplexed One*).—Earth piled against the trunks of the trees to the height of 5 to 7 feet would not only not benefit the trees but it would injure them, and probably considerably. Previously to placing the soil in the required position build a dry wall round the trunks of the trees, and they will be rendered quite safe from injury.

LILY OF THE VALLEY NOT FLOWERING (*Amateur*).—The crowns were probably defective. To induce them to flower next year your object now should be to encourage the growth of healthy foliage and to maintain it as long as possible. A shelf close to the glass in a greenhouse, or a cold frame will be suitable for the plants, which must be well supplied with water and be freely ventilated. Early in May the pots may be plunged in the garden, still watering them when needed, or the clumps may be turned out of the pots and be planted in good soil, potting them again in the autumn.

HYACINTHS AFTER FLOWERING (*Various*).—As soon as the flowers fade remove the spikes and support the plants with water as usual, a little weak liquid manure twice a week being beneficial, so as to induce the growth of healthy foliage. A light position in a cold frame with abundant ventilation will be suitable for them until mild weather ensues, when they may be placed in a warm situation out of doors to mature their growth. They will not produce spikes equal to those formed by imported bulbs, but if three or more of the home-ripened bulbs are placed in a pot they produce a very cheerful effect the second year. Tulips and Crocuses that have flowered in pots should be planted out during mild weather in April.

ROSES FOR NORTH-EAST WALL (*S. H. B.*).—All kinds of climbing and strong-growing Hybrid Perpetual Roses would succeed provided their roots were well mulched with manure, and water was given as required. Plums and Morello Cherries would also succeed on the same aspect. Without knowing more precisely the nature of the soil and subsoil we cannot say

what fruits would succeed best in your garden. You might derive practical and useful information by observing the fruit trees in your district. Early Potatoes, indeed nearly all early vegetables, usually succeed well in sandy soil, especially if the ground is mulched with manure and water is applied freely during dry weather. Salt at the rate of 5 cwt. per acre is a cheap and good application for such soil.

HOUSE FOR ROSES (*T. K.*).—The form of house depends entirely on the mode of culture you intend to adopt, whether you require fine plants or only cut blooms. A span-roofed house with a stage (or bed if you desire to have the Roses planted out), 6 feet in diameter, with a path round it and flat side stages 3 feet wide next the glass, would enable you to grow fine specimens, the house being light and well ventilated. For forcing for early blooms a lean-to house with a south aspect, the path being along the back and 2 feet from the wall, is suitable. The back wall can then be covered with such valuable varieties as Maréchal Niel, Gloire de Dijon, Belle Lyonnaise, &c., a wide bed or border on the opposite side of the path affording convenience for plants in pots or planted out, the hot-water pipes being in front. A house of this kind requires less fire heat than a span-roofed house. It cannot be too light.

ROSES (*Busy*).—We do not know of a book of the nature you require. You cannot have better information on Roses than that published from time to time in our columns, and any question on which you require special information will be readily answered. Do not peg down your newly-planted China Roses at present, but prune them rather closely so as to encourage the growth of vigorous shoots, which may be pegged down in the autumn. Such plants as you name will do well in the scroll beds, as also would such annuals as Convolvulus minor tricolor, Saponaria calabrica, and probably Nasturtium King of Tom Thumbs, the seed being sown in the beds early in the present month.

MANURE FOR GARDEN (*Irish Subscriber*).—If the soil is naturally fertile the manure at your command will enable you to grow moderately good but not luxuriant crops. You would find a bag of guano very advantageous for making liquid manure, mixing half an ounce of guano with a gallon of water, and applying it to plants and crops when they are in a growing state, or if guano is sprinkled on the surface of the soil between the crops during showery weather at the rate of half an ounce to each square yard of ground it will be very beneficial. The Fern is Polystichum aculeatum and is quite hardy.

SHOW PELARGONIUMS (*S. B., Cheshire*).—The following are six good varieties:—Corsair, Artist, Prince Leopold, Highland Lassie, Ruth, and Woman in White.

EARLY AUTUMN-FLOWERING PLANTS (*D. T.*).—Besides the plants you name you may raise such plants as Balsams, sowing the seed in May, Cockscombs, Celosias, and Globe Amaranthuses; but all the plants would thrive better in frames, kept close and moist according to the weather, during the summer months than under the shade of Vines. You should also grow Achimenes, Gloxinias, and Liliums; and for late autumn Vallotas, Salvia splendens, and Chrysanthemums.

PRUNING YOUNG FRUIT TREES (*Idem*).—As the roots have been necessarily mutilated by the removal of the trees, the branches also should be correspondingly shortened, otherwise the trees, instead of making free healthy growth, will probably assume a stunted condition from which they will not speedily recover. A suitable Conifer for your lawn would be a Wellingtonia, or any of the following would look well—Cedrus Deodara, Cupressus Nordmanniana, or Picea nobilis.

LOBELIAS (*A. B. W.*).—You will be able to distinguish L. speciosa from the variety compacta by the stronger growth and larger foliage of the former. The difference will be apparent when the plants are large enough for pricking out, or at any rate before you require to plant them in the garden.

GROWING BRITISH FERNS (*A Russian*).—The frame you name will be suitable. We should place it on a row of bricks in a cool partially shaded position during the summer months, removing it to a warmer site during the winter. If the pots are plunged in cocoa-nut fibre refuse the plants will thrive better than if not plunged, especially any that are rather small and delicate, and the plunging material will protect the roots during the winter. The mode of glazing is efficient, and the frame will not require heating.

CYCLAMENS AFTER FLOWERING (*A Lady*).—Place your plants in a frame, and water them as required so as to promote the growth of foliage, or they may be planted out in light soil in May, potting them again in September. If they are not planted out they may be potted when fresh growth is commencing in the autumn. Do not thin the growths of the Gladioluses, but keep the pots in a cool and very light frame. Seed of Rhodanthe should be sown in 5-inch pots, the plants being subsequently thinned out, leaving about six in each pot. Without knowing the names of the Ipomœas and Amaranthuses we are unable to answer your questions respecting them. If you send the names of the varieties you must repeat also the subject on which you desire information.

PEARS ON QUINCE STOCKS (*Connaught Subscriber*). — Your gardener is right, and you may safely plant all the trees that grow freely, and in due time they will bear good crops of fruit.

ROUGH PLATE GLASS (*E. G.*).—Although such glass affords sufficient shade for conservatories generally, we have found that a slight additional shade is occasionally required during very bright weather by Ferns in houses glazed with rough glass, unless the Ferns can be placed in shady positions such as are often afforded by plants of larger growth that require light. You may raise any quantity of Watercress plants by purchasing bunches from the vendors, and inserting the cuttings in light rich very moist soil in a shaded position; or plants may be raised from seed sown in similar soil.

AURICULAS (*P. Rainford*).— The flowers of show varieties have green grey, or white edges, white paste, and yellow tube. Selfs have white centres with a border of one colour only, as plum or purple, and have, like the show varieties, foliage more or less mealy. Alpines have plain green foliage not mealy, mostly yellow centres, and maroon or crimson shaded borders.

EVERGREEN CLIMBERS FOR A PORCH (*Old Subscriber*).—Lonicera brachypoda with white and pale yellow flowers, Berberis Darwinii with stout glossy foliage and rich yellow flowers, Ligustrum japonicum with handsome green foliage and white flowers, will answer in any part of this country. If you live in the south you may have Escallonia macrantha with stout dark green glossy foliage and spikes of deep pink flowers, and quite the best plant for the purpose; or Berberidopsis corallina with foliage of a yet darker shade of green and deep crimson flowers; Ceanothus rigidus, a mass of pale lavender flowers in early spring; and Ceanothus divaricatus equally ornamental with flowers of a somewhat deeper shade of colour later in the year.

PLANTING POTATOES (*Subscriber*).—If the soil is very rich and Potatoes usually grow luxuriantly we should take up every alternate row and plant the sets at the wider distances; but if the soil is light and rather poor we should allow them to remain. The sets can be removed now without sustaining any injury. If the soil is heavy the sets ought not to be covered more than 3 inches deep. If the ground is very strong, approaching to clay, and if the sets had not made some growth before being planted, many of them will probably not grow at all. It is for you to consider whether the whole of the tubers should be taken up and replanted in rows 2 to 2½ feet apart according as the soil is light or heavy, covering the sets about 3 inches deep in strong soil, 4 inches in medium, and 5 inches deep if the soil is light and dry.

VINES BREAKING WEAKLY (*Idem*).—The Vines were sufficiently injured last year by thrips to account for their growing so weakly this year. If you permit the insects to increase to the same extent this year the Vines will be ruined. As soon as the Vines are in full leaf fumigate them lightly on two consecutive nights every week, except when the bunches are in bloom. By adopting this practice and syringing regularly, the insects will be checked and the Vines will not be injured. You injured the foliage by excessive fumigation. Continue the present temperature until the bunches are visible, then increase it 5°, giving a further increase of 5° when the Vines are flowering. Black Hamburghs set freely with a night temperature of 60°.

VINE BUNCHES CURLING (*J. S. O'Grady*). — It usually arises from the roots being deep in a cold outside border, and is very common this season where the roots have not been well protected with a thick covering of leaves and litter. Indeed some early vineries have entirely failed from the outside borders not having been covered with fermenting materials. There are other causes of the bunches curling, the most frequent being imperfect ripening of the wood, resulting in long-jointed soft growths.

MAKING A VINE BORDER (*S. M.*).— If the site is wet it should be efficiently drained. The soil being clay a concrete bottom is desirable; yet if you raise the border above the ground level instead of excavating, using chalk liberally for drainage and protecting it from soil particles by covering it with a layer of turf grass side downwards, you may with good soil and management grow useful crops of Grapes.

GREENHOUSE AND STOVE PLANTS (*A Reader*). — Azaleas: Madame Charles Van Eckhaute, Madame Van der Cruyssen, Neptune, Jean Vervaene, Comte de Chambord, and Todmani. Greenhouse plants: Boronia serrulata, Chorozema cordata splendens, Acacia longifolia magnifica, Eriostemon linariæfolium, Leschenaultia intermedia, and Phœnocoma prolifera Barnesi. Stove foliage plants: Croton Weismanni, C. Earl of Derby, C. Prince of Wales, Dracæna Robinsoniana, D. Goldieana, D. Baptisti, Aralia Veitchi, Anthurium Veitchi, Dieffenbachia Baraquiniana, Maranta rosco-picta, Cocos Weddelliana, and Areca Verschaffelti. Stove flowering plants: Allamanda grandiflora, Anthurium Schertzerianum, Bougainvillea glabra, Clerodendron Balfouri-anum, Dipladenia Brearleyana, Ixora Duffii, Ixora Colei, Stephanotis floribunda, Rondeletia speciosa major, Tabernæmontana coronaria flore pleno, Medinilla magnifica, and Gardenia florida. Orange trees: Excelsior, Maltese Blood Orange, Tangierine, and St. Michael's.

PEACH BUDS DROPPING (*J. of W.*).—The buds may have been destroyed by the soapy solution, 1 lb. of soft soap to half a gallon of water being too strong by half; besides, the shoots were literally smothered with the clayey pigment. The wood seems very unripe, but the buds are destroyed, though it is possible they may have been cast owing to their imperfect development from a deficiency of water at the roots after the fruit was gathered, or in the late stages of growth, or from attack by red spider. Keep the trees moist at the roots, and avoid using the pigment.

CUCUMBERS CANKERING (*Carr*).—We cannot tell the cause, but quicklime rubbed into the parts affected will subdue the canker if applied sufficiently early. There is no objection to horse droppings mixed with sawdust for forming a Mushroom bed, but much may be said in its favour.

SANCHEZIA NOBILIS TREATMENT (*E. H. J.*).— It succeeds admirably in rich turfy loam with a little leaf soil, using the compost rather rough, and affording free drainage, as it requires abundant supplies of water and must have a moist brisk heat to bring it out in good condition, and should not be subjected to sudden fluctuation of temperature or of atmospheric moisture. Plenty of light is necessary to give it a good colour.

WHITE GRAPE FOR INARCHING (*John Dawson*).—Duke of Buccleuch or Buckland Sweetwater would be suitable, as they succeed under the same treatment as Hamburghs.

ARALIA SIEBOLDI (*G. M.*).—When in free growth and the pots are filled with roots an application of weak liquid manure would be advantageous; this is preferable to mixing manure with the soil unless it is thoroughly decayed, and then it may form about a fourth part of the compost.

POTTING CAMELLIAS (*Idem*).—They must not be potted as soon as the young wood has ceased growing, but it should be deferred until the buds are set, as to pot them before the buds are formed would probably cause them to start into fresh growth. They may safely be potted immediately after flowering or when going out of bloom.

POTTING INDIAN AZALEAS (*Idem*).—Repot them immediately after flowering, and encourage growth by placing them in moist heat.

SOWING PRIMROSE AND COWSLIP (*E. T. H.*).—Sow during this or the early part of next month in moderately rich fine soil upon an east or other border where the plants will be shaded from the midday sun. Cover the seeds lightly, and do not allow the plants to want for water. When large enough to handle prick them out 3 inches apart in beds, lift with balls in autumn or early spring, and remove to where they are required to flower.

SCALE ON PEACH TREES (*X. Y. Z.*).—Mix paraffin oil and water in equal parts, and apply it to the scale with a brush, not touching the buds now they are swelling.

MINIMUM TEMPERATURE OF STOVE IN WINTER (*A. W., Erith*).—In the late winter a temperature of 55° in the morning was not too low, nor yet 60° by day when the weather outside was cold and the sky overcast. During severe weather it is not advisable to resort to hard firing to maintain a night temperature of 60° to 65°, and 65° to 70° by day by artificial means; but in mild weather the latter temperature should be secured.

ARRANGEMENT OF FLUE (*A Reader*). — Provided you can maintain a night temperature of 60° during severe weather we should not alter the flue,

as any additional bends might impair the draught. A protector placed on the flue would be valuable for raising seeds, striking cuttings, or for encouraging the growth of any very tender or delicate plants, the pots being plunged in cocoa-nut fibre refuse or sawdust, which should be kept constantly moist. If you extend the flue avoid any sharp angles, making the turnings as smooth and round as possible.

STARTING VINES (*J. S.*).—Continue a night temperature of 50° until the bunches can be detected, then increase it to 55° until they are on the point of flowering, when the night temperature may be 60°. Night temperature, however, really means the minimum early morning temperature, so that the house should be a few degrees in excess of those figures at nine or ten o'clock at night. The day temperature should be 5° warmer by fire heat alone; with sun and air it may be 15° to 20° warmer. Close the house at a temperature of 80°. Maintain a moist atmosphere, and admit air at the top of the house very early in the morning, increasing it with the increasing temperature. As soon as you can perceive the bunches retain those shoots that are the most promising, rubbing off the others; those retained being about a foot apart. Pinch out the tips of the shoots at one or two joints beyond the bunches, and continue pinching to one leaf as the after growth is made. The Vines must carry all the foliage possible without crowding. As the season advances fire heat will not be necessary. By starting the Vines now the Grapes will be ripe by the time you require them, and the wood will be well matured for next year's crop.

GLASS FOR A LEAN-TO HOUSE (*H. M. C.*).—The best glass for a roof is 21-oz. 2nds, and quarter-inch laps will answer well; 16-oz. 2nds is quite good enough for the ends.

LIQUID MANURES (*Scrutator*).—We do not think that the small quantity of charcoal used in deodorising liquid manure is sufficient to materially affect its efficiency. Charcoal acts in a peculiar manner, converting sulphureted hydrogen—one of the most offensive products of decomposition—into sulphuric acid, and ammonia into nitric acid, both of which compounds are valuable to plants although they are but slowly released from the charcoal. We have frequently applied liquid manure to plants in which charcoal has been immersed, and always with good results. Bone dust can be obtained from anyone dealing in agricultural manures. With more root-action and light your Fuchsias will, we think, recover.

PHOSPHATE OF AMMONIA (*H. H. R.*).—It forms excellent liquid manure for such plants as Fuchsias, Pelargoniums, Chrysanthemums, and plants of that nature, also for fine-foliaged plants that require more support than the soil in the pots afford. Half an ounce per gallon is a proper strength for such plants as Chrysanthemums, but a quarter of an ounce per gallon is sufficiently strong for the other plants named. Flowering plants seldom need liquid manure until the flower buds are formed, nor do foliage plants until their pots are filled with roots. It may be applied twice or thrice a week according to the condition of the plants and the size of the pots in which they are growing.

NAMES OF PLANTS (*John Pearson*).—Plumbago capensis. (*H. B.*).—The Orchid is Cœlogyne flaccida. The Fern is a Nephrodium, perhaps a variety of N. molle. (*F. M. L.*).—We do not undertake to name florists' varieties but we recognise your Camellias as—1, Jubilee; 2, Comte de Gomer; 3, Pæonæ flora alba; and 4, possibly Verschaffeltii (*A. B.*).—1 and 2, Cattleya amethystoglossa; 3, C. intermedia. (*E. G.*).—1, Aspidium trifoliatum; 2, Davallia dissecta; 3, Pteris serrulata maxima; 4, Adiantum curvatum; 5, Blechnum occidentale. (*J. C.*).—1, Lamium purpureum; 2, Asplenium longissimum; 3, Begonia, probably Marshallii; 4, Specimen too withered, it appears to be a Myosotis; 6, Pteris serrulata. We cannot name varieties of Polyanthuses or other florists' flowers. (*J. R. P.*).—Acacia longifolia. (*Effingham*).—It is a Verbascum, but we cannot determine the species from the specimen sent. (*Constant Reader*).—1, Cornus mascula; 2, Scilla siberica: 3, Saxifraga crassifolia. (*A Regular Subscriber*).—3, Cupressus torulosa. We cannot name the others without the flowers. (*H. A. R., Walton-on-Thames*).—Verbascum virgatum, a British species. (*Sandgate*).—We think it is a fine bloom of Alba plena.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

FIELD CULTURE OF PEAS.

AT first sight this appears to be a rather narrow and unimportant subject, but practically it is not so, for when we consider the various sorts of this pulse for early and late sowing, for double culture, for the value and uses of the corn haulm, &c., we have numerous and important points upon which the novice will require to be informed; and when we further consider the variety of soils composing home farms in the different counties, upon nearly all of which peas may be successfully grown where the climate is favourable, it at once opens out a wide field for describing the cultivation of this crop.

Nearly all the soils when properly cultivated are under certain circumstances made to produce peas; those situated near towns are often double cropped, when the peas can be sold for pulling green. The land, however, if at all foul with grass and weeds, must be tilled in the autumn, because there is no time to till the land in early spring, not even by laying out dung, for that not only delays the seed time but does not do so well for the crop as when ploughed-in during the autumn. If the land had been laid up by winter ploughing there ought to be no more work required in the spring than to well stir the soil with the scarifier, but which is better done by Howard's self-lifting drag. Peas should always be drilled in a freshly-moved soil, and when it is intended to grow peas and cabbages together, the peas being pulled green and the cabbages left to grow for cattle feeding on the home farm, the peas may be drilled at about 14 inches apart at the rate of about three bushels per acre. Some early dwarf sort should be selected which does not produce haulm more than about 3 feet in length. But as the most valuable of these sorts generally used by the market gardeners are too expensive to buy for field culture it is well to grow an acre or two for seed for the following year. As soon as the peas are high enough to bear horse-hoeing it should be done, as it facilitates the hand-hoeing. We do the hoeing at 14 inches between the lines with a common horse hoe generally used for root culture, but the two side shares are made like the centre hoe in general use. This stirs the land and destroys the weeds. As soon as the hand-hoeing is completed cabbage plants of the Champion Drumhead variety of cattle cabbage are planted with the spade, and the larger and stronger the plants are the better, for they hold their own well against the peas. They are set between every third row of peas at a distance of about 42 inches apart about the first week in May.

In selling the early peas for pulling green it is best to sell them by arrangement, the purchaser picking at his own cost, leaving the haulm. This is found to answer better than pulling for the buyer, because it is often a serious disturbance to the working staff of the farm. When they are all picked the haulm may be cut and ricked for winter fodder. The space between the cabbages should be immediately horse-hoed between the lines and hand-hoed between the plants; in this way a full crop of cabbages may be grown, particularly if 2 cwt. per acre of guano or nitrate of soda is hoed in. The crop of peas sold by contract for pulling green will on the average be of equal value to a crop of field peas commonly grown for a crop alone. This double culture is only recommended where the peas are to be sold green.

We will now refer to the growth of early field peas which may be grown when the land is clean with the view of taking a crop of turnips, mustard, or rape after the peas are harvested. The preparation of the land may be the same as we have described above, and the manure if dung is used should be laid on in the autumn; if any artificial manure is used it should be ploughed-in during the spring, because if spread on the surface it increases the growth of weeds too much. We have tried drilling at various distances between the rows, but we like 12 or 14 inches best, because after being horse-hoed and hand-hoed the peas close up in growth and effectually keep down the annual weeds. We have found that when drilled at 20 inches apart for the purpose of doing more horse-hoeing the pea haulm does not meet across the drills soon enough to keep the weeds down, and when the haulm settles down some falls each way, leaving a space in the lines where the weeds grow up without hindrance. This plan proved to be the worst we ever attempted.

The sorts of early field peas we recommend are the Early Dun, the Early Warwick, and Charlton, each of these sorts are early enough to be cleared in time for a crop of turnips, &c. Our plan is to cut the peas, women following and placing the haulm on half the land on each alternate ridge, then plough and drill turnips with 3 cwt. of superphosphate per acre the same day, and when half the land is drilled remove the peas on to the land drilled and seed the other half. The carting or turning of the peas seldom hurts the young turnip plants unless the weather should prove extremely wet and adverse. This plan of seeding we have known to produce twice the weight of roots as compared with waiting until the crop of peas was carted away before sowing the turnips. Imperial Blue peas are sometimes grown, but we find the cattle do not eat the haulm so well as that of the ordinary sorts of field peas. The haulm is a valuable part of the crop, for we find by analysis that 153 lbs. of pea haulm well saved is equal in feeding value to 100 lbs. of good pasture hay, and we have found in practical farming that good pea haulm was better for horses and cattle than the straw of any of the cereals.

We must now refer to the later sorts of peas, such as the Grey Maple or Marlborough, the large and small Brown Maple, commonly termed the Partridge peas; and in these late sorts there is, when the attack of the green aphides is considered, something rather remarkable about them, for they rarely suffer from it, which we think is on account of the late blooming of these varieties. In all the earlier sorts, if delayed in the seed time, they are generally attacked just as the bloom is beginning to show itself. When they bloom very early they usually escape the aphides. We are therefore induced to believe that the period is the important point to be considered, because both the very early and the very late peas are those which usually avoid the attack of this troublesome insect. When once attacked the peas make no further growth, and the yield of pulse is not only lessened but the haulm is seriously depreciated and rendered unpalatable to cattle for fodder purposes. The large and small Partridge peas are capital croppers, the latter especially, and are extremely well adapted for mixing with spring beans for a double crop. This subject has, however, been fully treated of under the cultivation of spring beans in this Journal on March 6th, 1879, page 183.

These late sorts of peas, especially the Brown Maple, produce a

very heavy crop of haulm, but in consequence of the late growth and length of the haulm lying on the ground it is not often harvested in such good condition as the haulm of the early sorts; still, on the other hand, the weight of the crop completely overpowers the weeds, and after removing the crop the land is found extremely clean and mellow for wheat, in fact it is one of the best pulse crops to precede wheat on the fallow break. The feeding value of peas is stated by analysis for feeding cattle, sheep, &c., to be about the same as beans; but in our own experience we have found a practical difference between beans and peas, especially for the feeding of early fat lambs for the metropolitan market. The point against peas is that they are more apt to scour the lambs than beans; but still they are better than beans for lambs because they do not harden the flesh so much, but this is of little consequence when the lambs go to the metropolitan market. We find too late that there is a wide difference between the value of the late coloured peas and the white or boiling peas. It is a common idea that the white peas are preferable for feeding fat lambs, and we held the idea to be correct until we had an opportunity of proving the contrary. Having supplied a purveyor in a large town in a southern county with our fatted lambs for a period of twenty years, and as we always had the opportunity of seeing them after being killed, we were in the habit of growing the late peas expressly for our early lambs. On one occasion, however, after using all the late peas we grew on the farm we purchased some white boiling peas, but after feeding the lambs for about fourteen days with them the purveyor, who was a truthful man, stated that the quality of the lambs had fallen off. On mentioning this fact to the shepherd we concluded the fault was in the white peas; we altered the food in consequence, and used coloured peas as before, and soon after the lambs resumed their former good quality, and gave as good satisfaction to the butcher as they had always done previously.

WORK ON THE HOME FARM.

Horse Labour.—We cannot do better than ask the home farmer to anticipate a dry hot summer, and to do so in order to force on the horse labour of the farm so that the crops may be got in early and without too much ploughing of the land, because extra ploughing is sure in a dry time to dissipate the moisture of the soil so necessary for the germination of the seed and the proper progress of the plants whether of cereals or pulse. Another way of viewing the matter is, that after having thus conducted the horse labour the position will be equally advantageous should the season prove a wet one. The wheat plant is in some cases very weak and thin in consequence of the severe frost during the winter, and the ring roller is now necessary to give the ground solidity, the frost having drawn the soil away from the young plants. Many of them will die away without the land is ring-rolled; or what is better, the sheep being driven over it regularly. Some persons are talking of ploughing up the thin wheat and sowing the land with oats or barley; but it is too soon yet to decide upon the policy to be adopted as the best, for if the land is in good condition as regards manure one plant in a square foot is sufficient to insure an average crop, for when the land is rich the plants tiller immensely, and in some seasons we have reaped capital crops when the plants have been extremely wide apart. The land has worked very freely of late, and the fields recently seeded give a fair promise for a good growth both of cereals and pulse. The odd horse (or horses according to the size of the farm) is as important and sometimes more so than the other horses employed. We hold it to be bad policy that the teams or pairs of horses should be broken or separated for the purpose of doing work, which at the busy periods is best done by power set apart to meet every contingency, otherwise it often happens that much is neglected, particularly work which contributes to the neatness of the farm and premises. The odd horse will now be employed in carting couch grass on to pasture land, carting hay, &c., to sheep in the field, carting roots, straw, &c., for feeding cattle in the boxes or dairy cows in the stalls or yards, and in various odd jobs on the farm requisite to keep up a cleanly state of the homestead, &c.

Manual Labour is now employed in couching, hedging, ditching, &c., also the shaping of farm roads leading from field to field, so that by taking off the outsides the water may run freely off the roads at all times, and the turves as they are cut up may be carted away to heap, there to decompose for the purpose of earthing the cattle pens, &c.; or the turves may be burnt into ashes, as they are always required upon the farm for mixing with manure for drilling root crops, &c. We have found it a good plan to have this work of cutting turves and burning done by contract, paying so much per hundred bushels for burning, as much of such work may be done by the men after hours as the days increase in length, and thus give the men the chance of earning a little extra money. The shepherd will now require that the Swedish turnips intended for the sheep through April should be prepared for cutting by being pulled, cleaned, and heaped; if, however, the weather should continue to be very dry this work should not be done very far in advance of the sheep, as the roots sometimes, being out of ground too long, get very tough and are less valuable for feeding. When, however, we wish to keep the Swedes for feeding with sheep during the May month, we prefer to keep the roots in the land, and by cutting off the stems down to the crown of the bulb they will keep well in the land, and prove of good feeding value all through the month or even longer. We have sometimes used them in this way until midsummer in capital condition, but cutting the stems off should not be done until the greens are far enough advanced to show a small flower head about the size of a shilling; the stop to vegetation will then be decisive, and enable the roots to be preserved for a lengthened period. Men may also be employed in the pastures where any grass is left from not having been fed down last autumn. Rushes should also be cut down close with the scythe, as in both instances the young grasses now just appearing will make much better progress either for hay or for feeding purposes. The yardman should now attend to his breeding sows and store pigs, the former especially being kept whilst pregnant in yards of small extent with a shed attached, and fed with wash, &c., receiving also mangold cast into the yard with a few peas or beans in the trough once a day. The yard may be fenced with iron cattle hurdles, the long horsedung being spread in it as it comes from the stables and allowed to accumulate. This is found to make excellent accommodation either for sows or store pigs, as they will be constantly treading down the dung and adding to its value by their own droppings and consolidating the mass, which would deteriorate greatly by overheating under ordinary circumstances. When the sows are about to farrow they may be removed to comfortable pens, where they may remain until the young pigs are weaned, when they may return again to the yard and hovel.

NANKIN BANTAMS.

Fashion is an impediment to poultry culture as well as to many other things. We plead from time to time for breeds which caprice has caused to be neglected, but which we believe to be useful. Of course there are varieties which are tried and found wanting in some particular quality, and which consequently fall into deserved oblivion; but there are others which are forgotten for no valid reason, but simply because novelties either produced or imported put them out of mind. Among such are the old-fashioned Nankin Bantams. We had some diminutive specimens in childhood, and were then told that they had been common a generation ago. Probably they were of Chinese origin, and were imported in trading vessels. That the breed is of some antiquity and has long been bred to the Bantam type is clear from the ease with which they are kept small in size. We have had many kinds of Bantams, and find this difference between the old and modern races—viz., that while the former are easily kept of Bantam size, the latter are ever reverting towards the size of the larger breed, to which they owe some of their blood.

At the present time Nankin Bantams are almost extinct. We fancy they may be found here and there at game-keepers' cottages, where they have long been kept for their good qualities as foster-mothers of Game. Some years ago we obtained a cock and two hens from far-distant counties, and have ever since kept them carefully pure, though much inbred. Once for a short time some interest was excited in the breed, and a few pairs appeared at a pretty Bantam Show held at the Crystal Palace. There was then a good yard which had long been kept in purity, but which has now unfortunately been dispersed. Our own stock is at present from circumstances reduced to a single pen, and though we are often asked to part with them we are at present unable to diffuse the breed. We would gladly interest any of our readers in hunting birds up in out-of-the-way places, where we fancy they may still be found. Those cannot do better who require quaint and uncommon and by no means profitless pets. For such we will give our idea of Nankins' points. They should be moderately short in leg, the cock with proud and coxcombical carriage, head thrown back, and wings almost sweeping the ground. The general colour of his breast and body should be ginger, that of his neck and saddle hackles brilliant orange or even fire-coloured red; his tail we prefer, like that of a Golden-pencilled Hamburgh, bronze and black, though we do not object to it all copper-coloured; his sickles are long and finely arched, and he has a profusion of side tail feathers, which add greatly to his beauty. The hen should be of an even Canary buff all over save the tail, where the buff shades into black toward the end. As in Buff Cochins some dark lacing on the neck hackle is not uncommon, but it strikes us as a blemish. Combs are a debated point. We have had very pretty birds with both single and double combs from the same strain. The few judges who have deigned to notice our pens at shows have preferred those with rose combs; on the other hand some old fanciers have assured us that single combs are correct, and our smallest and best-shaped birds have had them. The colour of legs, too, varies. We decidedly pronounce in favour of *blue*; it contrasts so prettily with yellow plumage.

So much for their appearance, but now for their excellence. We know of no breed which for its size lays such large eggs. We have had tiny hens the eggs of which were as large as those of our Golden-pencilled Hamburghs. Then they are good and quiet

sitters, and tend their chickens till they are nearly full grown. Like all the Bantam tribe Nankins are most easily tamed, and their confident and impertinent ways are very funny. They would thrive happily in many a garden end where at present a mongrel collection of larger birds are seen trampling into mud the soil in a wire enclosure, and where the latter pine the true Nankins would well repay their owner in eggs for the modest meals they require. To those who have such accommodation we can confidently recommend this neglected breed of poultry.—C.

VARIETIES.

We are glad to see that Mrs. Acton Tindal, who sold her celebrated stock of poultry rather more than a year ago, and who was believed to have retired entirely from the poultry fancy, has returned to it.

—— We have received the schedule of the Royal Cornwall Agricultural Society's Poultry Show to be held at Falmouth on June 11th and 12th. There are twenty-seven classes for poultry, with good prizes and seven silver cups; eleven classes for Pigeons shown in pairs, and one silver cup. The Judge is to be Mr. E. Hutton.

—— At the Council meeting of the Bath and West of England Society and Southern Counties Association held March 25th at the Grand Hotel, Bristol, the Right Hon. the Earl of Morley, President, in the chair, Colonel Luttrell on behalf of the deputation appointed to visit Southampton, reported the inability of the Local Committee to provide a suitable site for the Society's show yard, and the consequent abandonment of the proposed Meeting there next year. Meeting of 1880.—The Secretary presented an invitation for the Society to hold its Meeting at Worcester in 1880, which was accepted subject to approval by a deputation of stewards, who would visit Worcester on an early day to conclude arrangements.

—— We have received from Messrs. R. R. Fowler & Co. a "Descriptive Catalogue of Prize Poultry and other Pedigree Stock, with Hints on the Management of Ducks, &c." The "hints" are concise and valuable. As an example we cite the following on Dorkings:—"The good old-fashioned breed is so well known, and everywhere so appreciated, that we need say but very little about it. They have one fault, however, which detracts from their value—viz., that they will not thrive well where Ducks are largely kept, whether from the fact that the damp soil which suits Ducks is prejudicial to their health, or from other unexplained reasons. We have ourselves certainly proved that Ducks are 'death' to Dorkings, and are compelled to keep them away from ground which is tainted by waterfowl. They lay a large white egg, are great favourites for table purposes, owing to their fine meaty breasts and the whiteness of their flesh. The Dark or Coloured variety are reputed to be hardier than the Silver-Grey; but the latter are so handsome that they find very many admirers." Other varieties of poultry are referred to in a similar manner, and there is an excellent article on Aylesbury Ducks.

ENCOURAGING EARLY BREEDING IN HIVES.

Your correspondent, Mr. Raitt, opens up an interesting field of inquiry in his remarks relative to the encouragement of breeding in hives or *vice versâ*, according to the pasturage or honey season of any particular locality. He begins by saying that "nothing is to be gained by meddling with bees until at least spring flowers are abundant." But shortly afterwards he advocates early stimulative feeding; and recommends at the same time that artificial pollen should be offered to them in the open air, "as soon as early flowers begin to attract the bees." Now our experience in the west is that early flowers begin to attract them from the very dawn of the year. In ordinary seasons we have masses of laurustinus in full bloom throughout the winter, and on every fine day when the weather is open the blossoms are diligently visited by bees. Besides these (quite early in the year, beginning with the first or second week in February), a considerable variety of other spring flowers are daily expanding, all of which are more or less constantly visited for pollen or honey or both.

This year is of course most exceptional. As I write (March 27th) the laurustinus is only just opening such blossoms as have escaped the frost. Equally late are the willows; crocuses alone have been available for pollen or honey in any quantity. Yet looking to the very rapid outburst of spring flowers which may take place at any time with the expected return of warm weather, I have been stimulating my bees both by gentle feeding and by the supply of artificial pollen.

I cannot but think it advisable always to encourage the fullest and earliest possible development of hive strength, whatever be the expected or probable harvest, immediate or remote, at least up to the last great summer supply of honey from whatever source, for there surely are very few places in England where honey in considerable quantity may not be harvested even in early April. I am confidently expecting this spring a grand and almost simultaneous outburst of bloom in garden, orchard, and field, which will probably continue for a full month or six weeks. Coming late it will be all the richer in honey juices, because of the warmer sun and calmer air in which much of it will be developed. Generally our earlier bush fruit blossoms and meadow flowers are dried up by parching winds and frosts in February and March. But here we are in midwinter with scarcely a bud swollen. I remember such a late spring many years ago, when all the cells were full and glistening even of the outer combs of the hives in mid April.

Surely it is well to be always ready in such a climate as ours, and not to wait to stimulate breeding and foster strength till the flowers are actually abundant; the more so as the coming early spring harvest may possibly be the only abundant one of the year, affording our solitary chance of a surplus of nectar, and so on into the year. Granted that bad weather may come and the increased population induced by our stimulants may sometimes find it hard to maintain existence, will a poorer hive be better able to contend with a deficiency of stores? and will not the larger population have been proportionally successful in providing a corresponding increase of its stores?

As to the breeding powers of the queen, my experience inclines me to believe that there is practically no limit to them save the limit of age. Given the favouring circumstances of hive activity, suitable weather, and natural fecundity, and the queen's powers of generating and depositing eggs seem equal to any call. Some queens, of course, are naturally more lively than others, and their breeding powers correspond. But up to their powers in each case is their will to lay. If they cease breeding it is because they have no inducement. With us here the month of September generally produces a panic in egg-laying, and for some weeks perfect indolence prevails, but I attribute it to the daily increasing fall in the activity of the hive owing to the cessation of the July and early August honey harvest. I should like our Scotch friends to tell us whether they find any cessation of breeding in those hives they convey to the moorlands with a view to the harvest of heather honey.—B. & W.

MR. RAITT AND HIS BANNOCK.

After I had dispatched my observations on nitrogenous food for bees, published in the *Journal of Horticulture* for March 6th, I received the March number of "L'Apiculteur," the journal having the greatest circulation amongst bee-keepers in France; but the proprietor—known as the Professor of Apiculture, who gives open-air demonstrations during the summer at an experimental apiary established in the Luxembourg Gardens, Paris—Monsieur Hamet, is too much wedded to the old straw skep system to allow very much to appear in his journal that would advocate strongly the claims of mobilism; consequently there appears very little in his journal referring to the actual success or non-success attending the working of bar-frame hives throughout France, and in the main there is very little in it each month that interests me, but every now and then I find something good; and in the number just received, in an article headed "Feeding with Flour for Pollen," there is to us who have been looking into the question a great degree of interest, for it is written by a bee-keeper of great note for his success with artificial feeding. When I read this article by Mr. C. Weygand of Esthbath, Germany, and came to the mode of preparing his flour food, I exclaimed, "Why that is Mr. Raitt and his bannock over again!"

It is interesting to observe how the minds of men are at work all over the world in the same grooves without the slightest knowledge of each other or their work—men who, like this Mr. Weygand, cannot probably read English, and so know that Mr. Pettigrew mooted the subject as to whether bees eat pollen or not, and so drew from Mr. Raitt a description of the highlander's bee bannock, and so led me to give your readers an idea of what I was myself doing in far-off Algeria, where it is the common idea a bee's paradise reigns the whole year round, feeding being supposed to be totally unnecessary, but which is, as I can testify, far from being the case.

The Germans seem to have decided that there is an advantage to be gained by feeding the bees with artificial pollen—not out in the open air, but in the interior of the hive, basing all their calculations upon the laws of natural nutrition. Taking chemistry for their guide, and learning therefrom that every animal body is composed of albuminous matters, fatty matters, and salts, they having studied the bee find in it no exception to the rule. The bee draws these matters from its food, consisting of honey, pollen, and water.

It appears that, acting on an appeal from the eminent Baron Von Berlepsch, extensive experiments have been carried on in Germany during the past year to determine the question, and at a meeting of the bee-keepers of Nassau in August last a report was presented favourable to speculative nitrogenous feeding as applied in the interior of the hive.

Mr. Weygand reports having obtained the most favourable results, and states that in his neighbourhood such was the miserable weather (the cold winds, &c.) that not ten per cent. of swarms were reported; yet those who, including himself, fed the bees

with flour inside the hives increased their colonies fifty and one hundred per cent., and made very good harvests of honey. Another great German bee-keeper (Herr Gravenhorst) reports having obtained the most satisfactory results. This all refers to the spring of 1878.

Mr. Weygand prepares his food thus :—"Take 1 lb. of wheaten flour, adding thereto either some salt or a little wine, then with water make this into a batter, by mixing carefully to avoid lumpiness. In another vessel put 2 lbs. of sugar (or if honey 1½ lb.), and mix this up in one or two quarts of water. This latter is now intimately blended with the batter, when it is ready for feeding."

This mixture keeps good for several days if necessary. No barm is on any account to be added, for it would prove poison to the bees. This food is given as above, or boiled, when a sweet paste is obtained by mixing with its equivalent weight of water. I made up this food and presented it to my bees, and can testify to its ready acceptance by them. I have not yet tried it boiled; only in the raw state. I offered it in little trays, as also poured into pieces of comb hung in the hives, and my advice is, Adopt the latter plan. The bees suck up all the sweet liquor first, and a portion of flour remains in the cells, which they continue to dig away at, and carry off until it all disappears. Mr. Weygand states that even the milk as well as the egg food is improved by mixing flour therewith, and strongly advises all feeding at night. I only give a quantity sufficient to be consumed the night it is fed, then instead of hanging about the food all day the bees go off if weather be favourable to seek the natural sources of supply.

But as there are two sides to every story, so there are those who warn the young apiculturist against rushing into a general feeding of his stocks in manner aforesaid.

Thus Mr. Ch. Zwilling, in the "Alsace-Lorraine Bienen Zuchter," says, that although there be apiaries at Lunebourg of sixty colonies, which by speculative feeding increased last year to three hundred, it must not be forgotten that the men who did this are old hands at the work, that they know how to prepare, not only the food but the colonies to pass the winter, and the when exactly to apply the artificial food. All goes well if the bright spring sun and mild weather favour the bees in their daily excursions, but if with a bright sun there should be sudden gusts of wind or sudden rain storms, then the bees, tempted out of doors by the thought that the constant supply of nectar comes from the fields instead of man's hand, are caught and chilled, never to reach that hive again where the animal heat produced by each one is so much needed. A hive in this way may be quickly depopulated, the brood be chilled.

My own experience leads me to advise caution; and to anyone going to feed his bees on nitrogenous diet I would say, Have a perforated zinc moveable door to your hives, and if the temperature be low enough to do it with safety, should the weather be windy or bitingly cold, close the door, shade it from all light, and keep your bees quite prisoners until the weather be favourable.

Let British bee-keepers study this food question, make their careful experiments on certain stocks, and then at end of the season let us have the results in your valuable columns.—ARTHUR TODD, *Algeria*.

DR. PYNE'S BEE VEIL.

WE have seen nothing better as a protection to the bee-keeper when working among his bees than Dr. Pyne's veil. It is composed of a cylinder of wire netting, which surrounds the face and neck, and which is fastened to the hat by a piece of muslin. A covering of muslin extends over the shoulder, and thereby the whole upper part of the body is effectually defended from the attacks of the bees; while the clearness with which the work can be observed through the wire netting is so great that no difficulty is experienced in performing any of the operations of the apiary in perfect safety.

Fig. 37.

OUR LETTER BOX.

BOOKS (*J. W. D. N.*).—Geyelin's pamphlet on rearing and breeding poultry can be had from this office, price 2*s.* 8*d.* post free. The other work you name is not published in English. (*M. M.*).—Perhaps "Bee-keeping," 5*d.* post free, and the "Ailanthus Silkworm," 1*s.* 1*d.*, published at this office, will afford you the information you desire.

CROOKED BREASTS (*T. D.*).—Take away all the roosts, and cover the floor of the chickens' sleeping place with 6 inches depth of sand.

BEES INACTIVE (——).—Though your bees have hitherto declined to eat or work they have a queen, for the bees of very weak hives are loth to leave their nests in cold weather such as we have had this spring. Turn the hive up and see how many seams of bees are in it. If it has three seams of bees as large as a postcard or a lady's hand it will live, and it should be fed by sprinkling warm syrup over the bees. If it has only two seams it will probably die in a few weeks. In order to ascertain if it has a queen now, you should drive the bees from their nest by smoke and see if there is any brood in it. If it is a bar-frame hive you could easily lift out two or three central bars and ascertain whether it has a queen. If it is a hive with fixed combs feed the bees by sprinkling some warm day, and half an hour after shake them out on a cloth. Experienced bee-keepers can on examination tell by the conduct of bees in their hive whether they are queenless or not, but they cannot by the lessons of the pen teach inexperienced persons how to know this. When a queenless hive is turned and held up for a few minutes the bees commence making a great and peculiar noise, and follow one another like hounds after a fox.

SECTIONAL SUPERS (*J. H. E. C.*).—A full reply to your queries will appear in an early number. The sections are set in a box or tray with quarter-inch laths across the bottom to support their ends and allow a passage for the bees below. The openings on the top are closed by a quilt, and are useful for allowing inspection of the progress of the comb-building.

BLOWING CREAM OFF MILK (*W. B.*).—We do not know of any instances of the cream being blown off milk. It may be one of those practices by which if the milk is reduced below the ordinary standard vendors would be fined if the milk were sold. Under ordinary circumstances, if cream were made into butter or used as cream, the practice of blowing it off the milk is an improper one and ought not to be permitted.

REGULATION OF DAIRIES (*B.*).—The late order for the regulation of dairies kept for the produce and sale of milk is not at present generally understood, and until a few cases have been decided under the order it is not easy to say exactly what are the exceptions.

CHURN FOR SMALL DAIRY (*Ledbury*).—Those made and sold by Mr. George Hathaway of Chippenham, Wilts, we think as good as any. The charge for a churn to make half a pound to 9 lbs. of butter is about £3. One with stand to make 11 to 12 lbs., £3 10*s.*

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. March and April.	Barometer at 32° and Sea Level.	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 26	29.690	33.4	33.1	E.	37.4	35.7	31.2	39.2	32.1	0.088
Th. 27	29.581	39.3	36.8	N.E.	37.4	42.9	32.4	62.2	30.2	—
Fri. 28	29.690	37.2	35.0	N.	37.7	44.6	31.2	93.5	28.7	0.040
Sat. 29	29.653	49.0	47.6	S.	38.9	58.5	37.3	107.1	34.9	0.053
Sun. 30	29.767	47.0	43.5	S.W.	40.3	53.4	38.4	90.8	33.2	0.105
Mo. 31	29.647	47.8	45.3	S.W.	41.2	54.9	43.0	99.6	39.2	0.023
Tu. 1	29.690	45.3	43.7	N.E.	42.3	53.2	41.5	88.4	39.1	—
Means	29.674	42.7	40.7		39.3	49.0	36.4	83.0	33.9	0.259

REMARKS.

26th.—Dark foggy morning, very cold, snow falling all day.

27th.—A brighter day, and dry, but sunless and cold; starlight night.

28th.—Still cold, but fine day, bright sunshine from 1 till 5 P.M.; overcast evening.

29th.—Damp and dull in early morning, much warmer, bright sunshine a good part of the day, few very slight showers, short sharp gale of wind, rain, and hail at 4. 45 P.M. followed by bright sunshine; showery in evening.

30th.—Showery day, bright sunshine at intervals; lunar halo 8 P.M.; fine evening.

31st.—Showery morning, very fine afternoon and evening.

1st.—Fair, but overcast and dull.

A further rise of temperature during the week, whereby it has reached its average.—G. J. SYMONS.

COVENT GARDEN MARKET.—APRIL 2.

OUR market is now so quiet that there is little or no alteration to quote, early Strawberries being the only article reaching us in increased quantities.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples	½ sieve	2 0	to 5 0	Melons	each	0 0	to 0 0
Apricots	dozen	0 0	0 0	Nectarines	dozen	0 0	0 0
Cherries	℔ lb	0 0	0 0	Oranges	℔ 100	4 0	12 0
Chestnuts	bushel	2 0	6 0	Peaches	dozen	0 0	0 0
Currants	½ sieve	0 0	0 0	Pears, kitchen	dozen	0 0	8 0
Black	½ sieve	0 0	0 0	dessert	dozen	3 0	8 0
Figs	dozen	0 0	0 0	Pine Apples	℔ lb	2 0	4 0
Filberts	℔ lb.	0 9	0 0	Plums	½ sieve	0 0	0 0
Cobs	℔ lb	0 9	0 0	Raspberries	℔ lb.	0 0	0 6
Gooseberries	quart	0 0	0 0	Strawberries	℔ oz.	0 6	1 0
Grapes, hothouse	℔ lb	3 0	8 0	Walnuts	bushel	0 0	0 0
Lemons	℔ 100	4 0	8 0	ditto	℔ 100	0 0	0 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes	dozen	2 0	to 4 0	Mushrooms	pottle	1 6	to 2 0
Asparagus	bundle	6 0	12 0	Mustard & Cress	punnet	0 2	0 0
Beans, Kidney	℔ 100	1 0	1 6	Onions	bushel	2 6	4 0
Beet, Red	dozen	1 0	2 0	pickling	quart	0 4	0 0
Broccoli	bundle	0 9	1 6	Parsley	doz. bunches	2 6	0 0
Brussels Sprouts	½ sieve	2 0	4 0	Parsnips	dozen	0 0	0 0
Cabbage	dozen	1 0	2 0	Peas	quart	0 0	0 6
Carrots	bunch	0 4	0 8	Potatoes, new	℔ lb.	0 6	1 0
Capsicums	℔ 100	1 6	2 0	Potatoes	bushel	3 6	4 0
Cauliflowers	dozen	3 0	6 0	Kidney	bushel	4 0	5 0
Celery	bundle	1 6	2 0	Radishes	doz. bunches	0 0	0 6
Coleworts	doz. bunches	2 0	4 0	Rhubarb	bundle	0 0	0 6
Cucumbers	each	0 6	1 0	Salsafy	bundle	0 9	1 0
Endive	dozen	1 0	2 0	Scorzonera	bundle	1 0	0 0
Fennel	bunch	0 3	0 0	Seakale	basket	2 6	3 0
Garlic	℔ lb.	0 6	0 0	Shallots	℔ lb	0 3	0 0
Herbs	bunch	0 2	0 0	Spinach	bushel	2 6	4 0
Leeks	bunch	0 2	0 4	Turnips	bunch	0 2	0 4

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 10—16, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
						h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
10	TH		55.9	33.5	44.7	5 18	6 45	morn.	6 36	20	1 23	101
11	F	GOOD FRIDAY.	56.0	35.2	45.6	5 16	6 47	0 28	7 31	21	1 7	102
12	S		55.8	36.4	46.1	5 13	6 48	1 25	8 40	22	0 51	103
13	SUN	EASTER SUNDAY.	55.6	33.9	44.7	5 11	6 50	2 5	5 57	☾	0 35	104
14	M	EASTER MONDAY. BANK HOLIDAY.	57.0	36.1	46.6	5 9	6 52	2 34	11 15	24	0 20	105
15	TU		58.4	37.8	48.1	5 7	6 53	2 56	0 31	25	after.	106
16	W	Meteorological Society at 7 P.M.	57.4	37.1	47.3	5 5	6 55	3 12	1 45	26	0 10	107

From observations taken near London during forty-three years, the average day temperature of the week is 56.5°; and its night temperature 35.7°.

MIGNONETTE CULTURE.

HOWEVER welcome the Rose and the Lily of the Valley may be in autumn, winter, and spring, equally so is Mignonette. Amongst sweet-scented flowers it is indispensable, and should be grown in quantity to associate with other flowers. For room decoration it is invaluable, and for the conservatory and cutting purposes it has no equal. The varieties best adapted for winter forcing are Parson's Tree Mignonette and Miles's Hybrid Spiral. The latter is becoming a great favourite; it is more fragrant than the former, and the spikes of flowers are larger. It is suitable for growing into trained specimens, and without doubt it is the best that can be grown in 6-inch pots through the winter. For spring use the common garden variety is very valuable.

The seed should be sown at the present time for raising plants intended to be trained as pyramids and on umbrella trellises. A great mistake is often made by cultivators in sowing the seed too early; if pushed on rapidly from early-sown seed the plants almost invariably die in the autumn. Sow in 2-inch pots, clean and well drained, as these are very important items in the culture of Mignonette. After the pots are filled with a light rich compost two or three seeds should be sown in the centre of each pot, and a little fine soil placed over them. It is a good plan to sow twice as much seed as will be required, as many of the plants may turn out inferior. Those with small leaves we destroy, as they grow weakly and produce small flowers.

After sowing the seed the pots should be placed in a temperature not falling below 55° at night, when the seeds will soon germinate. A pit with a hot-water pipe in it is a good place for them, where the seedlings can be close to the glass, and receive plenty of air on favourable occasions, avoiding cold draughts. They will do equally well in a vinery or Peach house, provided they receive plenty of light. It is a good plan to plunge the small pots in cocoa-nut fibre or other moist material to prevent the soil drying too quickly. Only the strongest seedlings should be retained in the pots, and when they are a few inches high they should be supported by small stakes. By sowing the seed late the plants can be pushed on with all possible speed. If healthy plants and large spikes of flowers are desired they must grow rapidly, great care being taken that they never receive a check, as if the shoots become hard and woody little success can be expected.

When the small pots contain a mass of fine white healthy roots the plants should be transferred into 4-inch pots. The compost should consist of rich fibry loam, a portion of well-decomposed manure and leaf soil, a little soot, and sufficient sand to make the whole porous. After the first potting the leaf soil should be dispensed with, but it is very good for the small plants, causing them to make a quick growth. In potting, the soil should be pressed firmly, and the plants afterwards shaded from bright sun until they have rooted in the new soil. It should be decided early, when the plants are about 9 inches high, whether they are to be pyramids or trained on umbrella-shaped trellises, or in any other form which may suit the cultivator's requirements and taste.

The plants selected for pyramids should be those that have the greatest inclination to branch, while those for the umbrella trellises should be of upright growth, and as soon as the side shoots appear they should be removed until the plants reach the desired height, when they can be allowed to branch and cover the trellis devoted to them. As soon as the plants are ready they are to be shifted into 6-inch pots, and if growing in a low pit be kept close and shaded from the sun until they have made some roots, syringing them two or three times during the day. By this time the external atmosphere will be sufficiently warm to render artificial heat unnecessary. Care must be taken that the plants receive no check when the fire heat is decreased, which should be done gradually as the days lengthen. When the plants are well hardened off let them have abundance of air night and day, and be placed in a pit with a northern aspect on a bed of ashes or other moist material. If the pit is so situated that the strong rays of the sun strike directly upon the plants any time during the day they should be shaded, but not too heavily. If placed in a favourable situation they will develope young shoots with great rapidity, and the plants should be shifted into larger pots as they require it until they have their final shift into 9 and 10-inch pots. After potting treat for a few days as before recommended. After the last shift the desired trellis can be placed to each plant and training commenced at once. They will afterwards require more attention in tying and stopping.

Watering is a point of the greatest importance, and if there is any secret in growing Mignonette it is in a judicious use of the waterpot. In no stage of growth should the plants become dry, neither should they be saturated with water; one evil is as great as the other, and if neglected on this point the plants soon present a yellow appearance and quickly die. A moist atmosphere should be maintained about the plants all the season, and the syringe used two or three times a day. The plants are improved by receiving a little weak soot water occasionally; this useful stimulant acts upon the plants quicker than any other. By all means avoid using strong liquid manure too freely, as much injury frequently results from so doing.

To return to the summer treatment. The plants should remain in the pit as described until the days and nights become cold towards the end of September or the beginning or October, and every attention must be paid to watering, syringing, picking off the flowers, and training. We do not advise close training, because the flowers are not then so large, nor the plants so natural in appearance. Having to produce Mignonette in quantity from November until May, both trained specimens and plants in 6-inch pots, I have achieved much greater success by keeping them in pits as described than by placing them outside in summer, as they are then exposed to great extremes, sometimes being too wet, and at other times the hot and dry air round the plants is anything but suitable to their proper development, as the roots are tender and very liable to injury. At the end of September or October when there is fear of frost the

plants are removed to light airy situations where the frost can be excluded by fire heat when necessary. The plants required earliest are allowed to form their flowers, so as to develope them by the time they are placed under cool treatment.

The first sowing in 6-inch pots is made during the last week in July, and the plants are treated as described for the others, only five or six plants being left in each pot; these commence flowering in November and continue for some time. When the centre flower is removed they soon throw out many more on the stem: the same varieties are employed for this purpose. Miles's Hybrid Spiral in future will be grown in quantity, and Garraway's White is distinct and very sweet. Other sowings are made in the middle of August, and again in the beginning of September and towards the end of the month. The common garden Mignonette is used for the last two sowings. The pots are kept in a cool airy situation near the glass all winter, and the plants afford flowers as long as we are expected to have them.

The firmer the soil is pressed into the pots the dwarfer the plants grow and the larger are the spikes of flower.—W. BARDNEY, *Norris Green.*

PROPOSED SCHEME OF PEAR ELECTION.

THE subject of a Pear election has been well ventilated, and several very able articles have been written upon it. Now apparently there is a pause, for I notice that in the Journal of March 27th nothing is published about Pears. My first duty is to thank those who have so kindly written upon the subject, for nothing is more disappointing than to start a scheme and to find that no one is inclined to take it up. Besides articles which have appeared in print, I have received thoughtful letters, and, I may venture to add, have had a conference with those in authority, and a plan has in its outlines been arranged.

An election would be valuable or misleading. To be the former it must have lists supplied by qualified persons, qualified by experience, men of observation, and who can speak as authorities. Such can, I am happy to say, be found. But to be valuable the elections must not be of a rough-and-ready kind. My original plan of north and south of England I entirely give up, and it is proposed that lists come from each county; indeed it will be rather a county return than an election, and as such will be far more valuable. Schedules with ruled columns will be issued from the office in Fleet Street, and sent to known and experienced pomologists, both to growers of trees or fruit for profit, such as orchardists and suppliers of market produce, also to experienced amateurs, for their opinion will be very valuable in regard to fruit for home use. An amateur has often so much time on his hands, and watches so carefully, that his opinion within his range—quite a different range to the orchardist, is therefore particularly valuable. We shall, I trust, be able to have returns from proper places and proper persons. We shall be informed what Pears are best, not only in good but also in ordinary or bad years. This is of value particularly to those planting orchards.

I quite agree with Mr. Peach that "counties, soils, and climates" are all to be considered. To fortify what I have said, take this remark sent to me by an able gardener in regard to soils. "In a moderately light-soil garden Ne Plus Meuris I found was always splendid, in a heavy-soil garden it was worthless, cracked and speckled always. The reverse was the case with Beurré Diel, and more markedly so with Beurré de Capiaumont." Like experiences might be chronicled in regard to the influences of climate and situation. If there was in the matter of the Rose election a necessity of "electing the electors," in the words of Mr. Peach, how much more is there in regard to Pears, which are not things of fancy, but of food value. Therefore, I think all will agree that it is well that we shall be able to find those most competent to supply lists. "J. F., *East Riding*," will be especially pleased to hear this. He will be further pleased that "situation, soil, &c.," will be taken also into account. Speaking of situation, I must beg leave to thank "WORCESTERSHIRE VICAR" for his article at page 207. He has evidently not only been in various parts of England, but had his eyes open and made a note of what he saw. He is right, "climate has much to do with success in growing Pears." I have every hope that county returns obtained from qualified persons will be of considerable value in the future, and mark an era in pomology.

As at present arranged the reports will embrace—1, Orchard Pears for marketing; 2. Garden Pears for home use. The returns will probably be for each county. The headings of the columns in the proposed schedule will probably be—1, Name of variety; 2, Soil and geological formation; 3, Fertility—*i.e.*, bearing qualities; 4, Altitude above the sea; 5, Quality—*i.e.*, buttery or not; 6, When ripe.

Such are the outlines of the plan proposed—viz., a county return *versus* election.—WILTSHIRE RECTOR.

ROSES IN THE NORTH.

MY Rose garden, which is situated in the south of Yorkshire, does not present such a wretched appearance as I expected. Certainly the Teas have suffered severely, but the Hybrid Perpetuals have come through the winter bravely. I had written the above before I saw "WYLD SAVAGE'S" disheartening letter of the 27th of March, and I can only account for the great destruction among his Hybrid Perpetuals by the fact of his garden being composed of light soil, especially when I see in the Journal that Wm. Paul & Son, whose Rose grounds are of a stiff loam, advertise their great stock of Roses as uninjured; or perhaps it is to be explained by the great abundance of moisture in the air of the south-west of England. My own plot of land is strong and low-lying; indeed the south side of it is for weeks in autumn and winter almost submerged. To-day (March 29th) being very fine, I was able to examine every plant, and have arranged them in three divisions—viz., Very Hardy, Moderately Hardy, and Very Tender. With one or two exceptions I cultivate the seventy-two of last year's election, and will give them in rotation. They are chiefly standards.

I. *Very Hardy Roses.*—Charles Lefebvre, La France, Baronne de Rothschild, Etienne Levet, Alfred Colomb, François Michelon, Marie Rady, Madame Victor Verdier, Marquise de Castellane, Marie Finger, Dr. Andry, Sénateur Vaisse, Duchesse de Vallombrosa, Ferdinand de Lesseps, Exposition de Brie, Maurice Bernardin, Capitaine Christy, Marguerite de St. Amand, Camille Bernardin, Pierre Notting, Duke of Wellington, Star of Waltham, Comtesse de Serenye, Dupuy-Jamain, Edouard Morren, Fisher Holmes, Monsieur Noman, Prince Camille de Rohan, Victor Verdier, Beauty of Waltham, Mdlle. Thérèse Levet, Sir Garnet Wolseley, Abel Grand, Abel Carrière, Lord Macaulay, Annie Wood, Duc de Rohan, Gloire de Dijon, Jean Liabaud, Baron de Bonstetten, Miss Hassard, and Auguste Rigotard.

II. *Moderately Hardy Roses.*—Marie Baumann, Louis Van Houtte, Eugénie Verdier, Comtesse d'Oxford, Duke of Edinburgh, Reynolds Hole, Xavier Olibo, Mons. E. Y. Teas, Horace Vernet, John Hopper, Emilie Hausburg, Madame Lacharme, Hippolyte Jamain, Madame Charles Wood, Devienne Lamy, Belle Lyonnaise, and Duke of Connaught.

III. *Very Tender Roses.*—Maréchal Niel, Catherine Mermet, Souvenir d'Elise, Souvenir d'un Ami, Devoniensis, Niphetos, Mdlle. Marie Cointet, and Rev. J. B. M. Camm. Perhaps the Duke of Connaught ought to be in this latter class.

It will thus appear that out of the first forty-eight Roses about thirty are very hardy and six very tender. Of the newer Roses not mentioned above, Oxonian, Magna Charta, and Gustave Revilliod are of good constitution; while Mrs. Baker, John Stuart Mill, and Sultan of Zanzibar are decided weaklings.

Among Teas and Noisettes, Cheshunt Hybrid, Bouquet d'Or, Madame Berard, Caroline Kuster, and Céline Forestier are of the hardiest. Many of my dwarf Teas have been cut down, but promise fresh wood from the base; so that in spite of the extraordinary severity of the past winter I look for a great harvest of pleasure from my Rose garden, and expect to gather baskets of Roses quite equal to the productions of last year.—CURATE OF HOWDEN.

SUMMER-PRUNING RED CURRANTS.

WHILE examining some Red Currant bushes lately, about two-thirds of which had been pruned during the last season of growth by pinching off the ends of the shoots as soon as they were long enough, and the remainder left untouched until winter, I was agreeably surprised to see the remarkable superiority of the summer-pruned bushes. Strong little spurs had been formed, and the buds clustered so thickly that the bark was not visible, affording ample promise of a heavy crop of fruit. The winter-pruned trees, on the contrary, had comparatively few buds, having apparently wasted their strength upon

the production of useless shoots that had to be cut down to a couple of buds at the base. I am aware that summer-pruning of Currants is not a new idea, but results so important ought not to be left untold, in order that the practice may be adopted and the benefit to be derived from it shared by everybody.

Another thing about Currants which I had to learn long ago to my cost is, that unless the soil be thoroughly sound and rich they will not thrive. If a poor thin soil be enriched by manure in the ordinary way they will grow freely enough for a season or two, but they will do no good afterwards; top-dressing will keep them alive and a little fruit may be obtained, but nothing like a good crop. The best remedy for this unsatisfactory state of things is to trench the ground two spits deep, working in a double dressing of old hotbed manure in every part of it, then plant, and apply top-dressings of rich manure, and you will have no farther trouble. Trenches or stations are out of the question, for if the bushes make growth enough to yield a profitable crop of fruit the roots will spread and meet; and if there are masses of poor untilled soil intervening, so surely will they suffer, evidence of which will soon be found in the stunted growth and failing crop at the time when a supply is required from them.—EDWARD LUCKHURST.

VINES—SPRING VERSUS AUTUMN HEAT.

MR. WITHERSPOON at page 212 says he had concluded that "forcing young Vines was detrimental to their well-doing," and that he did not "think it possible to have the wood sufficiently ripened to guarantee the securing of good fruit;" and then he tells his trouble in ripening the fruit in autumn, being obliged "to put in a flue heated with two fires in addition to four 4-inch pipes," the usual number.

Now, there are two points which very many would like cleared up. The first is, whether employing fire heat in spring to start the Vines early, and afterwards to encourage their growth until the season is sufficiently advanced to warrant its suspension, is really harmful or not. The second is, whether the fierce heat generated by "four 4-inch pipes as hot as it was prudent to make them," and "a flue heated with two fires," is not more calculated "to prove detrimental to their future well-being."

We are decidedly of opinion that assistance with fire heat in spring is not detrimental, but the opposite; and we are as decidedly of opinion that Grapes ripened late in the season by means of excessive fire heat are not properly ripened, and neither is the wood of young vigorous Vines ripened by that means so well calculated to "guarantee the securing of good fruit" as the wood which is matured under the influence of the early autumn sun. You may supply sufficient temperature by means of the coal cart, but you cannot command the sunlight, which is the real ripener of fruit and wood. We are afraid that not a few possess but imperfect ideas on this subject. Ripe wood is wood thoroughly matured, containing a store of organisable matter for the production of fruit next season, and it is only under the influence of the sun's rays that sap can be elaborated. The autumn sun is, we think, of more value than the spring sun.

If the matured sap be present in the Vines heat will induce its circulation, and this is all that is done until the leaves are fairly developed; and in the case of Vines which are not moving until the middle or end of March the sun is generally powerful enough to assist them just when wanted. To be sure, if the sun would do it all, as in more favoured climes, it would be all right; but when it comes to a question whether fire heat is to be applied in spring or autumn, then give it in spring, and so be able to secure the sun's rays to put the last bloom on the berries and the nut-brown appearance to the wood. Under the heat and light of the sun in late summer and early autumn the buds will become plump, and there will be left no room for doubt as to whether the assistance of fire heat in spring or autumn is the more beneficial.

Mr. Witherspoon blames his climate. If it is worse than ours it is bad indeed. We are much farther north than he is, being not far south of the Grampians, and we are as much exposed to the east wind as is any place from John o' Groat's to Land's End. It has recently been so cold that we have had a difficulty in preventing the thermometer in the vinery from sinking below 50° at night, and can scarcely manage to exceed 60° by day, and this with Vines approaching the flowering stage. Still we apprehend no evil results, as we have been as bad before.

The full force of the east wind as it breaks on the gable end of our house, whistles through beneath the door, and sighs and sings through pane-laps and faulty ventilators, seeming almost to neutralise the heat derived from "four 4-inch pipes as hot as it is prudent to make them." Knowing as we do that sooner or later these dreadful east winds will be on us, it might be thought that we start too early; but from the situation of our house we have no sun after two o'clock, and if fruit and canes were not finished by August four 4-inch pipes aided by a double-fed flue would not make matters right.—SINGLE-HANDED.

CARNATIONS AND PICOTEES.—No. 4.

MANY years have elapsed since the Carnation became a florists' flower. Although originally found in high hilly places it accommodates itself to any situation in which it may be placed, the artisan being able to produce as fine flowers in his smoky blackened garden as the gentleman's gardener can grow in the open country with pure air and water. It will grow in nearly any kind of soil equally well, if the precaution is taken to pot firmly or openly, as the soil may be light or strong, using for a strong soil something porous, and for a light one something to stiffen it. I am glad to see that during the last few years growers of the Carnation have considerably increased in numbers. In my opinion there is no flower in which the same improvement has been made that has been effected in the Carnation. Originally the flower was single, and in many plants the production of double flowers is considered wonderful; but when, as in the Carnation, a change is even made in the colouring, it is indeed surprising. Naturally it is a self-coloured flower, comprising shades of purple, scarlet, rose, and white. The cultivated varieties consist of flowers which combine nearly all the colours in one single flower, as the bizarres, which have three distinct colours; whilst the flakes have two, and I have even seen a flower amongst the Picotees which had the colouring confined to the edge of the petal, in which two shades were perfectly distinct, consisting of purple and red, which imparted a novel appearance. I have amongst my own plants seen both scarlet and rose with white in the same flower, and my friend Mr. Bower raised a few years ago a bizarre in which the above are all to be seen, and which being called a pink and purple bizarre, although strictly speaking not one, is still classed amongst them, so that few are aware of it. It is called "Satisfaction," and is a very beautiful flower with the sweetest scent I have ever found in either Carnation or Picotee.

WORK FOR APRIL.—Potting must now be pushed on as fast as possible. Secure tall plants to stakes a few inches higher than the plants, to prevent their being broken by the wind, and have the flower rods in readiness for placing in the pots. If dirty they will be the better for washing in warm water and soap, brushing them well. They should also have a coat of paint every alternate year. In smoky situations the best colour for the rods is a green or slate colour, but where the place is clean and free from smoke I prefer white rods. As to the size and thickness of the rods this will depend greatly on the situation, whether it is exposed to or sheltered from strong winds. My situation being high and fully exposed to the south-east necessitates my using very strong rods, and even those I have had broken by strong winds. The following is the size I prefer:—Three feet six inches long, and when finished three-quarters of an inch in diameter at the lower end, and tapering off to three-eighths of an inch at the top. The lowest ends of the rods are pointed to penetrate the soil easily without breaking the roots. When the rods are new I give them two coats of paint before using, and when the paint is dry I dip each rod separately at the lower end for about 4 inches into boiling pitch; after this I place them in a bucket of cold water, which sets the pitch and prevents it from adhering to anything or leaving the rods. For small pots, say 7 inches in diameter, in which single plants or weak pairs are grown in a sheltered situation clear from the strong winds, a rod made of half-inch wood is sufficient, but always have them made of the best red deal. I have rods which have been in my possession nearly thirty years, though of course they have been pitched two or three times. Should the plants make rapid root-growth the rods may be placed in the pots at the end of the month—(the reason why it is not done at once is, that the plants when newly potted have in some cases very few roots, which are liable to be broken off when inserting the rods into the pots)—the stakes to which the tall plants have been attached can then be removed, tying the plants up to the rods.

Seed may now be sown in boxes 1 foot 6 inches long by 1 foot wide, and 5 inches deep, placing at the bottom of the box (which should previously have had a number of holes bored through to carry off the water), about an inch of broken pot-sherds or cockle shells; place on the top a little fibrous turf, or cocoa-nut fibre will do, on the top of which place a thin layer of thoroughly decomposed manure free from worms or their eggs; fill up to within an inch of the top of the box with a compost composed of loam, leaf soil, and decomposed manure in equal parts, adding a little sand and fine charcoal. Press the soil firmly round the edges of the box, filling to within 1 inch of the top, and level the soil with a trowel, or anything that will make it smooth, when the seed can be sown broadcast if mixed, or in rows if a registry is desired to be kept of the different seed pods, as to their crosses, &c. The soil being an inch down will leave sufficient room for a short tally or number to each row of seed. If the soil is damp it will only require covering up for a few days until the seed begins to germinate, otherwise give a watering with a fine rose, being careful not to wash the seed about. After covering, which may be done with a piece of board or slate, place the boxes in a slight heat; examine them on the fifth or sixth day, and if any seeds are seen to be germinating sprinkle a little of the compost amongst them. After the seed has fairly started the covering can be taken away, substituting a pane or two of glass having a coat of whitewash or batter, which is best to keep the full glare of the sun from the plants. In the evening or during dull weather the glass covering can be taken off the boxes and the plants left exposed.

As soon as all the seed has germinated the boxes can be left open, and can remain so until the leaves begin to grow, when the plants may be pricked out into other boxes 2 or 3 inches apart, and gradually hardened-off by exposure so as to stand in the open air. The boxes should be placed on a bed of ashes to keep the worms from entering them, or they can be placed on a wooden stage a few inches from the ground. Take care in pricking-out the young plants not to let any soil get amongst the young leaves, and plant them so that the cotyledons are close on the top of the soil. Watch for the aphis, as a single one can cripple a young plant. The slugs are also great pests, they should be looked for after dark. Some growers wait until May and sow the seed in the open ground; this I do not agree with, as there is a much larger per-centage of losses when the seedlings are raised in that manner.

Plants in Beds.—Replace any that may have died, loosen the top soil, and trim off all dead or decayed leaves. Hunt for slugs. A few cabbage leaves or thin pieces of soft wood partly decayed are good for placing on the beds for the slugs to get under, and they can be looked for in the morning. A few young ducks are very useful, as they devour large quantities of both slugs and worms. The ducks must not, however, be kept in the garden after being more than a month old, as they get too heavy and are liable to break the plants by treading on them. When the plants have fairly commenced growing, which with me is the latter part of this month, the rods may be set up, tying the flower stems to them as they advance. The best tying material is soft bast, which should not be used so thick as to look unsightly.—GEORGE RUDD.

REVIEW OF BOOKS.

Potatoes: How to Grow and Show Them. By JAMES PINK. London: Crosby Lockwood & Co.

How to Grow Potatoes with Success for Exhibition. By WILLIAM PORTER, Old Meldrum, N.B.

THE two treatises before us have been written by two celebrated cultivators and successful exhibitors of Potatoes, and hence are entitled to respect by those—and they are many—who are interested in the "noble tuber." Mr. Pink's is a neatly bound, well-printed little book of nearly a hundred pages; it is also illustrated, but, unlike many illustrations of the present day, the figures do not do justice to the varieties represented. Mr. Porter's is a plainer pamphlet of twenty-six pages.

The first to arrive, and therefore to be noticed, is Mr. Pink's book. It contains ten chapters, the first two of which refer to the uses of the Potato, its early history and introduction into this country. By citations from old authors and more modern writers these chapters have been rendered interesting. The chapters relating to the preparation of the soil and manures are essentially useful, and the observations on the degeneration of the Potato are highly worthy of perusal. On this subject the author remarks—"When a new and improved seedling Potato is first brought into general cultivation it usually possesses a vigorous constitution and large productive powers. For the first year or two special care is devoted to its culture and to the tubers after they are lifted. We speak in glowing terms of this new variety; we admire the beauty of its foliage, the symmetrical form and fine texture and flavour of its tubers, and, above all, its extra cropping qualities; but in a few years in all probability it has fallen to the level of an average variety, and we say that the Potato has degenerated. That it does degenerate there is no doubt; but is there any one subject, either in the animal or vegetable kingdom, but would have degenerated, or more probably ceased to exist, under such treatment as the Potato has received at our hands?

"It has been the practice to select for propagation the refuse of the Potato heap. Small, immature, ugly, ill-shaped tubers have been considered good enough for seed; and when the result has not met our expectation we have raised the cry that the Potato is degenerating. We endeavour to improve our various kinds of vegetables, such as Carrots, Parsnips, Onions, Beet, &c., by selecting year after year the finest and best-shaped roots for seed-bearing purposes, knowing that the seedling will partake more or less of the good qualities of the parent, and this rule holds equally good in selecting Potatoes for seed. By carefully selecting good-shaped well-ripened tubers for planting we shall not only keep the variety to its original standard of excellence, but by continuing the practice we shall ultimately improve it by selection."

The various modes of propagating the Potato from cuttings, single eyes, cut sets, and whole tubers are referred to, also the management of the growing crop. Stirring of the soil between the rows is strongly advocated, and for this purpose the useful implement represented in fig. 38 is recommended. It has

Fig. 38.

"six prongs or tines, which are made in pairs, and can be firmly secured in the eye of the iron head by means of a wedge and a small piece of leather. The prongs are square and 8 inches in length, the outer pair being 10 inches apart, which is the actual width of the hoe. When it is desirable to reduce the size the outer prongs can be taken out, thus reducing the hoe to the width of 6 inches, the prongs being again made firm in the eye by the addition of another wedge.

"On light and medium soils this is a most useful implement for breaking up the soil and for general earthing purposes, and a much greater amount of work can be got over with it than by digging with a fork."

The Potato murrain is discussed at considerable length, but nothing new is elicited. The last chapter of the book is devoted to exhibiting Potatoes, for which purpose lists of suitable varieties are given. Referring to international Potato exhibitions the author observes that they "have done a vast amount of good by encouraging the best methods of culture and the introduction of improved varieties is indisputable; but it is likewise true that they have also been the means of introducing a number of varieties whose only recommendation is that they possess a handsome appearance, and are therefore, according to the present system of judging Potatoes, desirable for the exhibition table. If these exhibitions are to continue and increase in usefulness, and to be raised above the mere repetition of an annual display of so many hundred dishes of Potatoes, means must be devised whereby the general growers can obtain some information respecting the habit and productiveness of the several exhibits. It does not necessarily follow, because a certain variety of Potato has been awarded the highest honours at the show, that it is a good or desirable kind to grow for general purposes; but it shows that it is a variety of good appearance and of a size that meets the approbation of the judges for the time being, and is therefore no criterion as to its quality and productiveness. A good illustration of this was given at the show of 1876, when Red Emperor took the lead of the English varieties, and again in 1878, when International held the premier place. These, while being

respectively the handsomest red round and white kidney grown, are quite second-rate in quality."

A table showing the number of dishes of the respective varieties staged at the Crystal Palace in September last affords evidence of the value of the varieties for exhibition purposes. In this list the American variety Snowflake has the post of honour—seventy-three dishes, closely followed, however, by the English variety Schoolmaster, seventy dishes. A few others that were largely represented are International Kidney, sixty-seven dishes; Magnum Bonum, sixty-two; Grampian, fifty-nine; Red Emperor, forty-eight; Trophy, forty-one; and Porter's Excelsior, forty. Amongst varieties of admitted value for cooking purposes we find Paterson's Victoria represented by twenty-five dishes, but York Regent only by three. Of the Ashleaf varieties Myatt's heads the list with seventeen dishes, followed by Royal Ashleaf with fifteen, while only three dishes of the old Ashleaf were staged. Out of six hundred so-called varieties in cultivation Mr. Pink selects fifty, which he describes as "heavy croppers of good quality." For the names of these and for much other information relative to the Potato we refer our readers to the book, which, while it contains much that is more novel than useful, is well worthy of perusal, and has already reached a second edition.

We now turn to the Old Meldrum pamphlet of Mr. Porter, which if more sober in appearance is not less sound in its teachings than the work above referred to. Mr. Porter's pamphlet is in no manner a compilation. There has been no ransacking of authorities for matter relevant to the subject in hand, but, on the contrary, the pages evidently contain a plain record of the writer's practice. The language employed is not elegant nor the style polished, but the meaning of the writer can be readily understood, and this appears to have been his chief object. The treatise details no such fancy modes of propagation as raising Potato plants "struck in heat from cuttings and potted off," nor of increasing them from single eyes. Careful selection of seed tubers is recommended, and the planting of whole medium-sized sets with superfluous eyes removed is advocated. Referring to the time of planting the author observes —"I do not approve of, nor have I practised, early planting. Where there is danger of spring frosts, if the growth is too soon above ground great harm may result from being frosted down. Besides I prefer rather not to plant till there is some natural heat in the soil, and then the growth both below and above can proceed unchecked; and by speedy and unchecked growth my impression is that better and brighter samples for exhibition will be obtained."

After describing the manures employed and the process of planting, exhibiting is fully alluded to. The author denounces the practice of scrubbing and polishing the tubers, on the ground that if his instructions are well attended to cultivation will polish most brightly and effectively. "I totally disapprove of all artificial dressing, and societies may easily put a stop to it by disqualifying samples that have been tampered with. All that should be done in the way of cleansing is to wash thoroughly with a brush and pure cold water. Some use as a finish soapy water, and it certainly will more fully cleanse than the pure cold water, and has a most pleasing effect on white Potatoes in particular, by producing or increasing a charming delicacy of whiteness, and by the use of the soapy water there is no unpleasant effect either as to smell or the preservation of the tubers for any length of time for exhibition, even although they are not wiped but left to dry of themselves. Using soapy water can scarcely be termed an artificial dressing, as it really is only a more perfect cleansing."

The varieties are enumerated with which the author has won high honours, and the relative quantity of manure is signified as suitable to the peculiar growth of several varieties.

The author is very severe on those whom he supposes capable of dishonest exhibiting, and of adopting "tricks" for the purpose of securing prizes. On this subject he observes—"To exhibit bought or borrowed stuff is a gross imposition, and an insult and wrong to every honest exhibitor. I am induced to make these remarks because I believe there is a good deal of dishonesty in this respect, and I have myself seen at a most important exhibition a large collection that I had every reason to believe was in whole, or in great part, not the produce of the exhibitors, though professedly staged as such."

The language that follows would lack nothing in force if it were a little more "polished." For its essentially practical nature, plain speaking, and various suggestions the treatise may be usefully read by exhibitors of Potatoes, and may be regarded as a fitting companion to the more elaborate work above referred to. Both the treatises are written by exhibitors for exhibitors, and have little or no bearing on the improvement and cultivation of the Potato as an important article of food.

LIVERPOOL HORTICULTURAL SOCIETY'S SHOW.

THIS Society held its fifteenth Exhibition of spring flowers in St. George's Hall on the 2nd inst. The arrangements of the display was the same as that at the Chrysanthemum Show in November, and we think Mr. Mason's plan of the octagonal bed system is more in character when filled with spring-flowering plants than those of autumn, as the arrangements on the 2nd inst. won the approval of a large and influential assemblage of critical admirers.

We will first note the nurserymen's collections. On entering the Hall the first collection which met our view was staged by Messrs. Davies & Co., Wavertree. Very noticeable were two Azaleas—Beauty of Surrey, a splendid waxy-white Petunia-shaped flower, and Obtusa, a very fine specimen of a valuable variety for early forcing; the colour is scarlet, and the plant has the character of amœna. Mr. Cowan of the Vineyard, Garston, staged his collection next, which from its excellence showed the rapid progress of this improving establishment. Close by was Messrs. R. P. Kerr & Sons' collection, which contained many new and rare Palms. Mr. Smith of Dell Nursery, Rock Ferry, had a well-arranged collection of healthy young stove, greenhouse, and subtropical bedding plants. The above four collections were not for competition, but added greatly to the effect of the Exhibition.

The large central bed of the plan contained the three collections of ten flowering and foliage plants, which were composed of such plants as Croton undulatum, Dendrobium nobile, Alocasia metallica, Imantophyllums, Rhododendron Countess of Haddington, Phajus grandifolius, Croton majesticum, and Croton Weismanii. Mr. J. Peers, gardener to R. Rayner, Esq., secured the first prize; Mr. H. Elliott, gardener to W. G. Bateson, Esq., Allerton, second; and Mr. W. Blomley, gardener to H. Crosfield, Esq., third.

Hyacinths and Tulips were by no means equal either in quantity or quality to the collections staged at former spring shows of the Society. In the class for twelve Hyacinths many observers thought the fine twelve staged by Mr. J. Gore, gardener to T. Holder, Esq., should have been placed nearer the front; yet the Judges were men of notable proficiency, and their awards in the various classes gave general satisfaction. Cyclamens were well represented: those shown by Mr. Mercer, gardener to B. C. Nicholson, Esq., which secured the first prize, were perhaps the finest ever shown in Liverpool. The second and third lots were very fine also. There were two certificates of merit awarded by the Judges, one to Messrs. R. P. Kerr & Sons, Aigburth, for a new Azalea named Heinrich Heine; and one to Messrs. J. Davis & Co., Ormskirk, for two Rhododendrons named Floribunda and Countess of Sefton.

The Judges were Mr. B. Findlay, Botanic Gardens, Manchester; Mr. Kefford, gardener to the Right Hon. Lord Skelmersdale, Latham House; and Mr. McFarlane, Knowsley Cottage, whose awards are as follow:—

Twelve Hyacinths, distinct.—First, Mr. J. Peers, gardener to R. Raynor, Esq.; second, Mr. Evans, gardener to Mrs. Lockett; third, Mr. J. Gore, gardener to T. Holder, Esq. Six Hyacinths in pots.—First, Mr. J. Peers; second, Mr. W. Wright, gardener to E. Lawrence, Esq.; third, Mr. J. Hurst, gardener to W. B. Bowering, Esq. Six pots of single Tulips, three distinct varieties.—First, Mr. Evans; second, Mr. J. Peers. One pot of Amaryllis.—First, Mr. Blomley, gardener to H. Crosfield, Esq.; second, Mr. Bustard, gardener to J. Lewis, Esq.; third, Mr. J. Peers. Ten Flowering and Foliage Plants.—First, Mr. J. Peers; second, Mr. H. Elliott, gardener to W. G. Bateson, Esq.; third, Mr. Blomley. Six Azaleas in flower.—No first awarded; second, Mr. Gore; third, Mr. Peers. Three Azaleas in flower.—First, Mr. Bustard; second, Mr. Peers; third, Mr. Lowndes, gardener to S. S. Parker, Esq. One Azalea in flower.—First, Mr. Evans; second, Mr. Wright; third, Mr. E. Shaw, gardener to Mrs. Winder. Three Azaleas in flower, pots not to exceed 10 inches.—First, Mr. J. Lowndes; second, Mr. E. Shaw. Four Rhododendrons in pots.—First, Mr. Bustard; second, Mr. Peers. One Scarlet Rhododendron in pot.—First, Mr. Moreton, gardener to G. Jevons, Esq.; second, Mr. Hurst; third, Mr. Bustard. One White Rhododendron in pot.—First, Mr. Hurst. Four Stove or Greenhouse Plants in flower.—First, Mr. Blomley; second, Mr. Peers; third, Mr. Evans. One Stove Plant in flower.—First, Mr. Wright; second, Mr. Hurst. One Greenhouse Plant in flower.—First, Mr. Gore; second, Mr. H. Elliott; third, Mr. Hurst. One Orchid in flower.—First, Mr. Vaughan, gardener to J. G. Morris, jun., Esq.; second, Mr. Sherwin, gardener to M. Sparke, Esq.; third, Mr. Wright. Four Ferns, distinct.—First, Mr. Peers; second, Mr. Wright; third, Mr. Lowndes. Two standard Mignonette.—First, Mr. Shaw; second, Mr. Vaughan; third, Mr. Robinson, gardener to W. B. Halhead, Esq. One Tree Fern, stem not less than 2 feet.—First, Mr. Hurst; second, Mr. Gore. Three Palms or Cycads.—First, Mr. Peers; second, Mr. Evans. One Palm.—First, Mr. J. Peers; second, Mr. W. Peers; third, Mr. Wright.

Three pans of Lily of the Valley.—First, Mr. J. Peers; second, Mr. Evans. Six Forced Hardy Plants.—First, Mr. J. Peers; second, Mr. Moreton; third, Mr. Bustard. One Forced Hardy Plant.—First, Mr. Moreton; second, Mr. J. Gore; third, Mr. Evans. Six Cyclamens.—First, Mr. Mercer, gardener to B. C. Nicholson, Esq.; second, Mr. Robinson; third, Mr. Wright. One Bouquet for the hand.—First, Mr. Evans; second, Mr. J. Hurst; third, Mr. Mercer. Extra prize, six Primulas, Mr. E. Shaw.

PEARS—DELICES DE JODOIGNE.

The subject of Pears at the present time being a prominent one in "our Journal," I should like to have the opinion of the connoisseurs on the merits of a Pear which I had from a nurseryman to whom I entrusted the selection of a few varieties. The name of the Pear to which I refer is Delices de Jodoigne; it is a capital bearer with me on the Quince as a pyramid fruit, very juicy and melting; ripe in November, and keeps well. I have wondered at never seeing it named, and thought probably there was something not right about it, and would like to know if some of your able correspondents can give an opinion on this Pear. My soil is naturally light, with gravelly subsoil. I am happy to say that nearly every one of my Pear trees are loaded with buds, the exceptions are Incomparable, which never has had a bloom, and late Bergamot; these and two or three young trees are the only ones which do not promise exceedingly well. My soil has had a good addition of clay as well as manure.—G. C., *Croydon.*

ROYAL HORTICULTURAL SOCIETY.

April 8th.

We have the pleasure of reporting an extensive and excellent meeting, and the day being fine there was a very good attendance of visitors. The collections of plants were arranged in the conservatory, the large structure being nearly filled. Amaryllises constituted an important feature of the display, about two hundred plants being staged, and their bold flowers and rich colours contrasted effectively with the Orchids, Roses, and collections of forced shrubs and hardy flowers. The Fruit Committee had no duties to perform, the only exhibit being a pair of fine Citrons from Mr. J. Muir, gardener to C. R. M. Talbot, Esq., Margam Park, Glamorganshire. Prizes were offered for Amaryllises, but only one was awarded for the "best dark seedling," to a striking variety named Thomas Speed, raised by Mr. Speed, The Gardens, Chatsworth. The plant is remarkable for its vigorous growth, the head consisting of six flowers rather small but of good substance, the petals slightly waved, colour flame scarlet. It is a valuable variety for decorative purposes.

Floral Committee.—Dr. Denny in the chair. A splendid group of Orchids was staged by Sir Trevor Lawrence, Bart., Burford Lodge, Dorking. A fine specimen of Dendrobium thyrsiflorum had eleven magnificent racemes. Masdevallia Harryana and M. Harryana cærulescens were excellent, the former with from twenty to thirty flowers, and the latter over forty. Dendrobium Jamesianum on a block had numerous large white flowers. D. Devonianum was superb with a densely flowered growth nearly 8 feet long, containing upwards of seventy flowers. A fine specimen of Lycaste Skinneri had fourteen well-coloured flowers. Cattleya citrina, very good. Cœlogyne corymbosa in a pan was laden with pure white blooms. Odontoglossum gloriosum, very fine. Oncidium concolor, on a block, was bright with fifteen racemes of light yellow flowers. The peculiar Masdevallia psittacina had about twenty-four flowers. Dendrobium crassinode album is a charming variety and received a first-class certificate, as did also Masdevallia bella, a very peculiar species with long-tailed sepals spotted with dull red on a pale yellow ground, and a small, white, loosely hanging labellum. The whole group was admirably arranged, and a large gold Banksian medal was awarded.

A large group of new and rare plants was exhibited by Mr. W. Bull of Chelsea, and included such choice and showy plants as Hæmanthus cinnabarinus, Epacris onosmæflora flore-pleno nivalis, Dendrobium Wardianum with a densely flowered growth 4 feet long; Odontoglossum cirrhosum; O. Pescatorei with upwards of a hundred flowers on the raceme, O. gloriosum, and O. crispum; Masdevallia Harryana violacea; Dendrobium Falconeri in a basket, very rich, the sepals and petals white tipped with purple, throat of labellum deep purple edged with yellow, and tipped with pale purple; Imantophyllums and Anthurium Schertzerianum with broad and finely coloured spathes. The foliage plants were Davidsonia pruriens with handsome dark green pinnate leaves; the dark Dracæna Chelsoni, Cocos Weddelliana, and Encephalartos villosus. A fine and effective group. A silver-gilt Floral medal was awarded.

From Messrs. Paul & Son of Cheshunt came a group of thirty-six Roses in pots, including Madame Victor Verdier, Madame Lacharme, Dupuy-Jamin, Royal Standard, and Comtesse de Serenyi, all very fine; and three baskets of cut blooms of Maréchal Niel, containing over sixty flowers, were magnificent. A silver-gilt Flora medal was awarded.

Messrs. James Veitch & Sons exhibited a collection of 115 seedling Amaryllises, many of them being remarkably fine and well coloured; also a basket of the fragrant Boronia megastigma. A large gold Banksian medal was awarded for the group. This firm also exhibited a few Amaryllises for certificates. Duke of Connaught received a first-class certificate; the flowers are neatly formed and of rich scarlet colour, the segments being of great substance; four flowers were produced on the head, and the variety is a very brilliant one. Duchess of Connaught was also exhibited by Messrs. Veitch, and only lost a certificate by one vote. The flower is rather small but of good substance, and is almost pure white, having only a faint tinge of green—quite a "new departure" in the genus. Another variety of undoubted excellence exhibited by the same firm was Henry Little. It is grand in colour and substance, and of very good form. Although this variety failed to obtain a certificate it is yet superior to some others that have been voted that honour. The standard of excellence, however, of these and other flowers becomes higher every year. Five plants of standard Lilacs were also shown by Messrs. Veitch; Syringa vulgaris var. Charles X., which were profusely flowered.

Messrs. Charles Lee & Son of Hammersmith were awarded a vote of thanks for a group of Azaleas, Spiræas, Rhododendrons, scarlet Pelargoniums, Ferns, Richardia æthiopica, Palms, Phormium tenax variegata, Dracænas, and Deutzias, all well grown and flowered, forming a neat and bright collection. Mr. B. S. Williams, Upper Holloway, exhibited a miscellaneous group of stove flowering and foliage plants, including Croton Disraeli, Dracæna Goldieana, D. Bausei, Azalea Flambeau, Cocos Weddelliana, Anthurium Schertzerianum giganteum, Tabernæmontana camassa, and Yucca filamentosa variegata. Mr. Williams also staged a fine collection of Orchids, amongst which we noted Dendrobium crassinode, D. aggregatum majus, D. Wardianum D. Findleyanum, D. nobile, and D. Devonianum; Cypripedium Dayanum, C. villosum, and C. Lowii; Odontoglossum cirrhosum, O. triumphans, and O. Pescatorei; Cymbidium eburneum, and several very fine Vandas. Sobralia aurantiaca was also represented, bearing large purplish flowers, the throat of the labellum being marked with pale yellow. In addition to the above a group of about sixty Amaryllises came from the same exhibitor. The best varieties were Vulcan, bright crimson; Mrs. Borroughes, small neat flower streaked with red; Fair Star, scarlet; Dr. Hogg, very large flower, fine form, and good colour; Expansa, an open flower, large and bright; Ackermanni pulcherrima, very rich dark crimson; and Pulcherrima, a fine scarlet. A great number of plants were staged, and formed a very brilliant display. A first-class certificate was awarded for Cœlogyne ocellata maxima, a charming variety; and a small gold Banksian was awarded for the group.

To Mr. Aldous, florist, Gloucester Road, was awarded a vote of thanks for a mixed group of Ferns, Azaleas, Spiræas, Palms, Hydrangeas, and Cytisuses, fringed with Selaginella Krausiana and Isolepis gracilis—good plants, but somewhat thickly placed. Messrs. Osborn & Sons of Fulham also received a vote of thanks for a light group of Azaleas, Hyacinths, Begonias, Palms, Richardias, and Anthurium Schertzerianum.

Messrs. Barr & Sugden exhibited a box of Hellebores and a number of cut blooms of Daffodils. Narcissus Humei is a good light yellow with a darker corona; N. Telemonius has a large and bright yellow corona; N. nanus small and pretty; N. obvallaris one of the best, a fine flower and bright yellow. For the Daffodils a silver Banksian medal was awarded. From Messrs. Cutbush of Highgate came three boxes of cut Epacris blooms and six boxes of cut Camellias. Of the former, which were very attractive, the best varieties were Campanulata maxima, deep rose, fine bells; Hyacinthiflora rosea, fine upright bright rosy flowers; Hyacinthiflora candidissima, white, fine; Waltoni, flesh pink, fine spikes; Fireball, red tubes, effective; Carnea, flesh pink, good; Odorata alba, small flowers, pretty; Racemosa bright pink; and Model, rose, free, and compact. The best varieties of Camellias were Fimbriata, Alba plena, Chandleri, Jenny Lind, Il Cygno, Colletii, and Conspicua. They were all very good, the excellence of the Epacrises being recognised by a vote of thanks.

Mr. R. Dean of Ealing exhibited a pretty collection of spring-flowering plants, including several Aubrietias, such as A. violacea, very good dark colour; A. græca, and A. Campbelli. Primroses were attractive, particularly Octoroon, rich dark red; Rosalind, bright pink; Lustrous, Beauty, Sunrise, Crimson King, and Rosy Morn. A pot of Primula nivalis was very pretty, with several snow white heads of bloom. Polyanthus Hose-in-hose Golden Gem was very good, as were also Myosotis dissitiflora and some seedling laced Auriculas. A vote of thanks was awarded.

From Mr. Robert Parker, Tooting, came a collection of hardy plants, the most noticeable being Scilla sibirica, Arabis albida, and A. aizoides, Megasea ligulata rubra, Hepatica triloba cærulea, Ficaria ranunculoides grandiflora, very showy; and the pretty Primula acaulis lilacina plena was very good. A vote of thanks was awarded.

From Henry Little, Esq., Hillingdon Place, Uxbridge (gardener

Mr. D. Wiggins), came a group of well-flowered, dwarf, and sturdy Cinerarias; the colours were various, and several were very rich. A vote of thanks was awarded.

A vote of thanks was awarded to Mr. Green, gardener to Sir George Macleay, Pendell Court, Bletchingley, for Dendrobium suavissimum, and he also received a cultural commendation for cut flowers of Mackaya bella, very fine, distinct, and attractive. Mr. Boller received a vote of thanks for Pilocereus senilis, and a cultural commendation for Echinocactus myriostigma. Chionodoxa Luciliæ was again exhibited, this time in excellent condition, by Messrs. Barr & Sugden, and received a first-class certificate. A similar award was made for cut flowers to G. Maw, Esq. The Committee were not justified in honouring this charming bulbous plant previously from the small scraps then placed before them, but now that its true character was seen they were not slow in recognising its merits.

A cultural commendation was awarded to Mr. J. Woodbridge, gardener to the Duke of Northumberland, Syon House, for an enormous specimen of Cyrtopodium punctatum, with four paniculate inflorescences of great size; the flowers are small, yellow, spotted with a darker shade. Mr. W. Howe, gardener to A. Smith, Esq., Park Hill, Streatham, sent a head of five large flowers of Rhododendron Nuttalli, very fine. Messrs. Hovey of Boston, U.S.A., sent cut flowers of the new Camellias—Mrs. A. M. Hovey, C. M. Hovey, and C. H. Hovey, which have been previously noticed. J. T. D. Llewelyn, Esq., received a vote of thanks for a very pretty Primula, stated to be probably a hybrid between P. viscida and a florists' variety: the umbels were large and compact, the flowers purple with a light-coloured eye. Mr. Heims, gardener to F. A. Philbrick, Esq., Q.C., was awarded a vote of thanks for a good plant of Odontoglossum nebulosum pardinum superbum. The Hon. and Rev. J. T. Boscawen, Lamorran, Cornwall, exhibited Rhododendron Mrs. Townshend (Boscawen), with paper white flowers and very attractive. Mr. Hunter, The Gardens, Lambton Castle, Durham, sent plants of Valeriana Phu, which he employs extensively for spring bedding, the foliage produced at this period of the year being yellow, and the effect in a mass is brighter than Golden Feather. The plants arrived too late to be submitted to the Committee.

ROSE SHOW FIXTURES, &c.

One of the duties imposed upon the Secretaries of the National Rose Society was that of announcing the various Rose Shows, so that growers might be able to see when they might enter the lists. It has been a matter of great difficulty, as there are various local circumstances which determine the fixtures, and consequently they are delayed. As far as I have been enabled to ascertain, the following Rose shows will be held:—

Royal Horticultural Society	Tuesday, June 24th.
*Norwich	Wednesday, June 25th.
*Maidstone	Thursday, June 26th.
National Rose Society (Crystal Palace)	Saturday, June 28th.
Horsham	Tuesday, July 1st.
*Reigate	Wednesday, July 2nd.
*West of England (Hereford)	Wednesday, July 2nd.
*Canterbury	Thursday, July 3rd.
Shrewsbury	Thursday, July 3rd.
Alexandra Palace	Saturday, July 5th.
Ludlow	Thursday, July 10th.
National Rose Society (Manchester)	Saturday, July 12th.
*Leek	Tuesday, July 15th.
*Newton Stewart..	Thursday, July 17th.
*Helensburgh (North of Scotland) ..	Friday, July 18th.
Dakoza	(?)

At those marked with an (*) the National Rose Society's medals will be competed for. I have not yet ascertained when Brockham will be held, or whether Oxford and Hereford will hold their tournaments this year or not. Should the secretaries of other societies send me the particulars I shall be glad to include them in a revised list. I wonder how many of your readers know where the last-named place is. I have inserted it because it reveals a curious instance of Rose love which deserves to be recorded. I have more than once mentioned the enthusiasm of my friend, the Rev. G. D. B. Mackenzie, who organised and carried out a most successful show in the extreme south-west of Scotland, at Newton Stewart, and how for two or three years I have been in the habit of assisting at it, and rejoicing in the genial and friendly spirit in which it was carried out. Great was my surprise last year to hear that Mr. Mackenzie had slipped his cable and was off to distant and lovely Ceylon, where, if according to Bishop Heber "only man is vile," it does not include in that category my warm-hearted and earnest friend. "You will have to go out and judge at Ceylon," was the bantering remark of his sister to me in announcing the fact, "for assuredly he will get up a Rose Society." I took this as a good piece of fun, but great was my surprise at receiving a letter last October from Mr. Mackenzie asking me to execute a little commission for him. This was simply to send him some seven or eight hundred Roses, for that he and a dozen other gentlemen in the neighbourhood had originated a Rose Society, and that they intended to hold a show some time in the summer. And perhaps the readers of the Journal may hear of the first grand exhibition at Dakoza. The Roses were despatched, but how they have fared on their long journey I know not yet. My friend draws glowing pictures of the glorious growth of Gloire de Dijon and other fine Roses, and I daresay we shall hear more of them. After this one may hear of a Rose Society in Greenland. The nearest approach to that fine climate is what we have been reading of the weather in the north of Scotland during the past winter, and yet I have before me a letter from a great lover of Roses, Mrs. Dunbar Dunbar, of Sea Park, Forres, in which she says, "I am glad to say that I have not lost more than six plants out of a thousand Roses. Not one (even the Teas) was protected save by litter at the roots." And yet here in the south of England bitter complaints are made of the ravages that the winter has made amongst the Roses! How is this to be accounted for?

At last there seem some signs of opening spring, and my own recollection of such seasons leads me to the conclusion that when it does come the growth will be very rapid and the season favourable. May it be so!—D., *Deal.*

THE BIRDS.

It is eighteen years since Mr. Marshall—a Deputy of La Meurthe, the Agricultural Society of Toulon, and the Acclimatisation Society of Nancy—petitioned the French Corps Legislatif requesting that steps might be taken for the preservation of those birds that destroyed insects detrimental to agriculture. Immediately there appeared letters innumerable, and leading articles in the *Times* and other papers and journals, giving exaggerated estimates of the value of "small birds." Unfortunately they were headed with this title, as thereby was included under one name birds of very different and opposite natures. The sparrow was spoken of as the great friend to the farmer, who was denounced in no measured terms as a stupid ignoramus, who delighted in sparrow clubs and killed his best friend. Churchwardens were cited for their killing propensities in the good old times, when church rates were expended on a pole tax on the sparrow. Naturalists also of no mean repute calculated the numbers of caterpillars on which the sparrow fed its young daily. The multiplication table was brought into requisition to prove how many were thus destroyed annually, calculated as if the sparrow fed its young all the year on them. The robin, hedge sparrow, the rook, and magpie were in turns cited as most valuable birds. As amidst all these statements there was some element of truth it came to be considered as proved, and those who ventured to write or say anything detrimental to the "small birds" were treated as lunatics. The country parson and the squire have put down the sparrow clubs. The sportsman who pays 10s. for his licence and finds his powder and shot sees no sport in killing sparrows that are so very common, and turns his attention to something scarce. As the country has become more highly cultivated and game scarcer a more determined onslaught has been made on the hawk family. The bird-catcher still follows his calling, but though he takes the larks and garden warblers he spares the sparrow, who, becoming bolder under his immunity from danger, is now the great pest of the farmer and gardener.

What is the result of this state of things? No one now ventures to grow Peas in his garden without guarding them by wire netting, or do we ever gather the Cherries in our orchards unless we have taken the precaution to guard the trees with a man and gun from two hours before sunrise till dusk; and the result recorded by "Wiltshire Rector" is an everyday experience of thousands. The Gooseberries are supposed to suffer most from the attack of the bullfinch. This is, I believe, a popular error. Bullfinches are scarce birds here, and yet we suffer as much from having the buds picked off as those where he is a common bird. Last year I had nearly all my Black Currants destroyed by sparrows, which suffered to an equal extent as Gooseberries from sparrows.

I believe over-preservation of birds, especially those that frequent our gardens, is a most serious evil. A few blackbirds would perhaps keep down the snails, but the large numbers have nothing else but our fruit to live on in summer time. I spent a week last autumn in the neighbourhood of Boulogne, and though I made long excursions every day into the heart of

the rural districts yet I hardly ever saw a bird, certainly not a sparrow, and here in the autumn our fields are alive with them. I do not know how the French gardeners get on without the birds, but they swamp our markets with Cherries and Plums. Our Australian friends have imported the sparrow much to their sorrow. How long are we to tolerate this growing nuisance? I am not prejudiced against the sparrow. I am a great lover of birds and acquainted with their habits, and am Vice-President of a local Natural History Society, so I hope your readers will not suspect me of a partial judgment.—A MAN OF KENT.

GRAFTING FRUIT TREES.

OWING to the lateness of the season much grafting yet remains to be done, especially in the northern counties, and it may not be too late to notice a mode that I have found very satisfactory. It is not by any means new, yet it is not generally practised. I first saw it in M. Baltet's work on grafting, and I tried it in comparison with several other modes and it quite answered my expectations. It may be described as crown-wedge grafting, and while the grafts "take" as well as in the ordinary crown grafting that is so frequently practised, they are much less liable to be blown out by high winds. The accompanying sketch and references thereto which I have

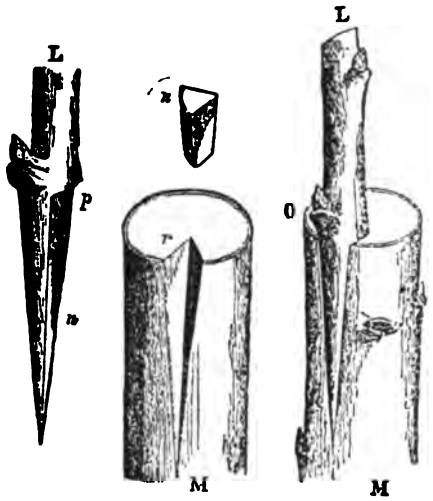


Fig. 39.

extracted from the work referred to render the process quite clear. L is a triangular scion cut as shown at *n*; the shoulder at *p* serves as a rest for the scion when placed on the stock; *n* is a section of the scion when cut. Before cutting the stock M, place the section on the part where the scion is to be inserted, and trace its outline in pencil at *r*, then cut on the stock a corresponding notch as represented at M to receive the scion; it will then have the appearance as shown in the figure L, O, M, and it only remains to bind the whole with matting, and cover with grafting wax or clay.—A YORKSHIRE GARDENER.

MY ORCHARD HOUSE, AND FRUIT PROSPECTS OUTSIDE.

PREMISING that my orchard house practice consists of growing fruit trees in tubs and pots in a late vinery from about February till June, your readers will better understand my position. Where success generally attends any practice it is prudent to follow the old beaten track; if failure be our lot, then let us search out and if possible determine what has led to it, that success may eventually be ours.

The past winter has been a remarkable one. The frost has not only been severe but long-continued. Not that I believe we may dread danger in proportion to the accumulation of frost. The fruit bud and the twig, unlike the earth, are penetrated to the core at the offset; there is nothing deeper to be laid hold of—it is simply the frost's grip any night being intensified from which we may dread danger. The fruit buds I sent to our Editors and elsewhere some time ago have drawn attention to the subject of injury to hardy fruit trees I believe much earlier than usual, and it was with full knowledge of this injury that I started my 130 trees, and their treatment has been influenced thereby. My hope was that some chance buds might have been protected by the snow, but that hope may be set at its proper value when I state that of the scores of buds I have examined I have not yet found one uninjured. Also let me notice that my trees by being grown under glass and last season were in the best possible condition to withstand frost—in fact, they were in a much better condition than those grown outside.

Being so satisfied with the mixture I painted with last season, I carefully dressed over all newly-bought trees of Peaches and Plums after pruning them. Next I determined to mitigate the injury and encourage as much as possible the flow of sap by growing the trees in a moist atmosphere. Then, not wishing to risk the loss of a single fruit, but being especially desirous to ease the trees as much as possible, as soon as the blossom buds had developed sufficiently I thinned each bud to two and three blossoms, and thus gave every bud the chance of proving uninjured. I soon found, save exceptional buds, that the blossoms of the Pears were perfect; the pent-up sap did its part, but the wood utterly failed to continue the necessary supply. A few Pears still continue to swell, but of those that set two-thirds went back, and in one instance a large branch also died. My Plums are no better. Apples have set fairly well, Early Margaret especially so. Of the Peach and Nectarine trees at least two-thirds of the branches were killed; the remaining portions appear to be much injured, but strangely the blossoms left set well, and the fruits are now larger than nuts, although I used the syringe more freely than is deemed prudent during the blossoming period. Whether they will stone is another question, but new wood from the bole and the branches left is now growing so vigorously that I have hopes they will.

Regarding the outside crop, I hesitate not to say, be the season what it may, there will be no Pears worth the name north of York. One other assertion I fear not to make—namely, that Peaches can stand more frost than Pears, and coupled with it the month of May runs a great chance of being found guilty of what in reality are the crimes of December and January. We see the dead branches of the Peach tree, but the equally dead wood of the Pear spurs and of other trees passes unnoticed. Now that future prospects are challenged, and especially if the blooming season should prove favourable, I shall be glad if observations are made in different districts, that in future we may know what frost fruit trees can stand in winter with safety. Here, it will perhaps be remembered, the spirit of the thermometer fell to 6° below zero.—JOSEPH WITHERSPOON, *Durham*.

P.S.—I send you some Plum foliage to confirm my statement regarding the efficacy of the mixture previously recommended, and also some spurs of Pears after blooming.

[The foliage of the Plums is splendid; we never saw finer. The Pear foliage lacks tissue, and the spurs being black at the core cannot sustain fruit, although, as we previously stated, the blossoms may expand under such unfortunate circumstances. —EDS.]

RHODODENDRONS PRINCESS ALICE AND MULTIFLORUM.

YOU recently gave a drawing of a fine Rhododendron. Let me call attention to an old favourite not sufficiently cultivated, and one which should be grown in memory of the lamented Princess after whom it is called, "Princess Alice." It was a seedling, I believe, of Edgworthii, but much larger and much sweeter. I have one now opening with forty heads of bloom, and about on an average three blooms to each truss, from 3½ to 4 inches in diameter, and sweetly scented. Care has to be taken not to overforce, otherwise fresh growth begins in the wood behind the bud, which is apt to push the buds off, but very little attention prevents this. Another beautiful little Rhododendron is a dwarf white one, Multiflora. A plant which I have had for eight or nine years is not more than 2 feet 6 inches through now, and it bears trusses of flowers like white Azaleas, only the buds are clustered close round the ends of the shoots. I have one open now with twelve or fourteen heads out, and from seven to ten blooms at the end of each cluster, and it is very chaste and effective—C. P. PEACH.

PRIMULA DENTICULATA VAR. PURPUREA.

THIS excellent variety is a valuable addition to the early-flowering hardy Primulas which are so attractive at this season of the year. The leaves are of moderate size and neatly formed;

the umbels are very compact and nearly globular, being only slightly flattened on the top; the flowers are numerous on short pedicels; and stout massive peduncles 7 to 8 inches in height support the umbels, which vary in colour from a pale tint to a deep rich purple, the latter, however, predominating. The annexed figure was engraved from one of the plants raised last year from seed of P. denticulata by Mr. Thos. S. Ware, the Hale Farm Nurseries, Tottenham. The plant appears to be identical in colour, habit, &c., with the P. purpurea for which Mr. Dean of Ealing received a certificate at South Kensington in 1876.

To obtain this variety in perfection it should be planted out

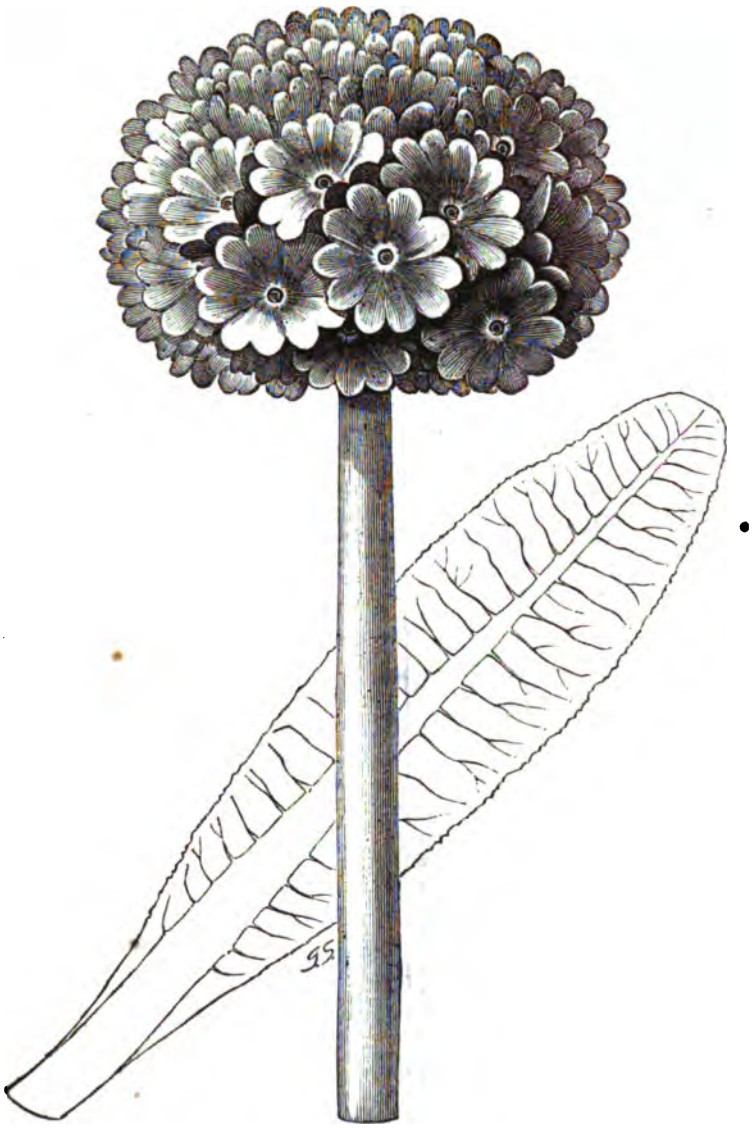


Fig. 40.—PRIMULA DENTICULATA PURPUREA.

in beds of rich soil in summer, where it will grow vigorously and flower profusely during March and April. If the plants be carefully taken up and potted, and then placed in a cool house, they may be introduced into the greenhouse or conservatory with fine effect.

Several beds of this beautiful plant at the Hale Farm Nurseries are now magnificent, the plants having had no protection during the winter.

This is a plant of great promise both for in and out-door decoration in early spring. Its colour is rich, heads massive, and it grows freely, producing a succession of flowers. It is a great acquisition and can scarcely fail to become very popular. The engraving represents the flower head and flowers in their natural size.

EXHIBITING ROSES—WHAT AM I?

I GROW Roses for the love of them and for exhibition, but am too poor in worldly goods to throw or give away my spare plants; and as I bud a rather large number every year for the maiden blooms, I have been in the habit of selling those plants that I do not care to keep sometimes by auction and sometimes by advertisement as an amateur. A few years since a great misfortune befel me—my entire business premises and

stock, not in any way connected with gardening, were destroyed by fire. Having that year budded an extra number of plants, and in consequence having the following autumn a fine stock of maiden plants, and being out of business, I thought I would start as a nurseryman Rose-grower, and published a trade catalogue. However, renewing my regular business in the spring following, I gave up all thoughts of the Rose trade, but I still sell my spare maiden plants. Having made this plain statement of facts, I invite discussion as to what classes I can show in—nurserymen or amateurs.—PERPLEXED.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S SPRING SHOW.—APRIL 2ND AND 3RD.

THE Exhibitions of this prosperous Society have always been characterised by the energy alike of officials and exhibitors, the great want experienced for many years being a sufficiency of space in any of the Edinburgh halls to accommodate the products of the garden and nursery brought together. Now, however, that the new Waverley Market has been placed at the disposal of the Council, and after a year's experience has proved in all respects satisfactory to those concerned, the horticultural public of Edinburgh may well be proud of the splendid shows which have been held in this spacious building.

Notwithstanding the severe winter which continued to within a few days of the Show, our expectations were agreeably exceeded in the high quality of the Exhibition. The exhibits were staged on a series of tables, between which there was plenty of space for inspecting the produce. The broad gallery round the Market affords the means of obtaining views of the whole Exhibition, and was largely taken advantage of by visitors. The central row of tables was set apart entirely to nurserymen. Messrs. Downie and Laird occupied the middle table with a collection of greenhouse and hardy Rhododendrons, some of the specimens being of great size and beauty. Specimen and half-specimen Azaleas, a fine variety of Imantophyllum miniatum, to which a first-class certificate was awarded, with forced plants in variety and some of the finest Cyclamens in the Show, composed a group at once massive and attractive. Messrs. T. Methven & Sons filled a large table solely with Rhododendrons in great variety and well bloomed. On a smaller table this firm showed an attractive collection of forced French Pelargoniums, and a light-coloured seedling named Countess of Rosebery was awarded a first-class certificate. The table provided by Messrs. Ireland & Thomson was considered by many the most attractive in the Show. Palms in great variety, the newer Crotons and Dracænas, large plants, and other fine-foliaged plants were relieved by a choice mixture of Azalea mollis, Hyacinths, Orchids in variety, &c. One of the prettiest of the tables was that furnished by Mr. Robertson Munro of Portobello. Alpines in great variety, Narcissus, rare and choice; a number of forms of Primula denticulata, spring-flowering Scillas, &c., were the chief of Mr. Munro's exhibits. In the group furnished by Messrs. Dickson & Co. was also a choice assortment of Alpine plants. Mr. W. Taylor, market gardener, Lochend, Leith, filled a large table with some extra well-grown market-garden forced flowers. The special award voted to this collection was certainly well deserved. Messrs. Drummond Brothers contributed a table of plants illustrative of what is fashionable in the "furnishing" trade; while that of Messrs. Todd & Co. was suggestive of the cut-flower department of the trade.

The best filled classes in the gardeners' section were those devoted to Dutch bulbs. Over two hundred Hyacinths were shown in competition; a large table was completely filled with Tulips, and Narcissuses were staged in even greater numbers. In the Orchid classes a superb example of Phalænopsis Schilleriana, with fine branching flower spikes fully developed, was exhibited by Mr. R. Masson, gardener to R. Milne, Esq., Arbroath. From the same exhibitor came a large collection of cut blooms of Orchids. From Mr. A. McGregor, gardener to C. Walker, Esq., Bradfield, Lanark, came a large collection of cut Orchid blooms, which were of special merit, having been well cultivated and containing many of the newest and best kinds in cultivation. The Azalea and Fern classes were well filled, and contained many fine specimens. Cut Roses were a good class though not up to the usual size, the Maréchal Niels being deficient both in size and colour. The remark applies also to Camellias.

With the exception of a few fine Pine Apples the fruit section was below the Edinburgh average. We had almost omitted to mention some grand seedling Amaryllises exhibited by Mr. Anderson, Meadow Bank, Uddingstone. First-class certificates were awarded to three of these—Isaac A. Anderson, orange scarlet with white veins, and somewhat tubular in form; Angus McLeod, velvety crimson, of great substance; and A. B. Stewart, a large crimson flower, spotted.

The management of the Royal Caledonian Horticultural Society is based on most popular principles. Competitors can show in any and every class free of charge. All prizes are paid within a few hours after the plants are staged. The general public can purchase tickets previously to the day of the Show, admitting the exhibitor one hour after the Judges have awarded the prizes for 1s.; on the day of the Show for 1s. 6d., and towards evening 6d. is the charge. An hour before the general public are admitted the members of the Society have the privilege of a private view. It may be of interest to other societies in large towns and cities to know that the inhabitants of Edinburgh respond in such a manner as not only to keep the Society in a position to pay its way, but also to accumulate funds.

WHAT BOILER SHALL WE USE?

WE noticed an article at page 237 of the *Journal of Horticulture* on the subject of heating, and now beg to give our experience, as this is an important question, and deeply concerns both the amateur and the professional horticulturist. "What boiler shall we use?" is a question frequently asked but rarely replied to satisfactorily, since of the numerous boilers now in the market each claims to be the best. It has occurred to us that if some of your readers who have had extended practical opportunities of ascertaining the truth in these matters were to give the results of their experience they would be doing a public service, especially to the perplexed purchaser. The late severe winter, and the consequent severe strain put upon hot-water boilers, must have forced upon the notice of the observing gardener grounds for comparing the merits of different forms of boilers under his control. Of course it will be readily understood that small boilers, warming it may be one or two houses, form little or no criterion, as they would be utterly useless for large establishments where the space of glass, as at our nursery, exceeds 45,000 feet in extent, and therefore it is to large establishments that our remarks must be taken more especially to apply.

After the enlargement and additions made to the glass on our premises we put down two large improved saddle-shaped boilers to meet the requirements thus rendered necessary. Imagine our disappointment when, in the unusually mild winter of 1877–8, we found ourselves deficient of boiler power, and were unable to warm the quantity of water contained in our heating system. True the circumstances of the case were somewhat exceptional, the number of the houses to be heated being unusually large, situated some distance apart, at different levels, containing nearly two miles of piping, and divided into ninety-five compartments; still as the season was so mild no difficulty should have been experienced in obtaining sufficient heat. However, as the boilers failed to supply this it became apparent that additional power must be obtained, either by fixing a third boiler of the same type as those already fixed, or by the substitution of another and more powerful form of boiler. We decided to adopt this latter course, and having seen some very favourable instances of Messrs. J. Weeks & Co.'s patent duplex tubular boilers we had one of their large ones with all recent improvements put down and attached to the pipes of the other boilers in use. The result, we are glad to state, is a complete success, and notwithstanding the extreme severity of this last winter (1878–9) we have with ease been able to maintain a good temperature in all our houses and stoves. Our large winter garden, nearly 100 feet square, has been delightfully warm, and we have been enabled not only entirely to dispense with the boilers before attached to our system, but also to discontinue the use of mats, with which on previous winters we have been obliged to wrap up the side glass in order to avoid dangerous consequences. We ought here to state that at the time of fixing this tubular boiler the quantity of piping in our apparatus was somewhat augmented, while in other respects the arrangement remained precisely the same as when the two saddle boilers were tried.

The marked improvement we have experienced gives incontestable proof of the very superior power possessed by the tubular boilers.—E. G. HENDERSON & SON, *The Pine Apple Nursery, London.*

PARAFFIN NOT INJURIOUS TO SEEDS.

ALTHOUGH some cultivators object to the practice of dressing seeds with paraffin, yet I quite agree with Mr. Taylor as regards the value of the oil as being one of the best preventives against the attacks of mice on Peas. I soaked the Peas for about twenty minutes in paraffin previously to sowing them, and the mice did not touch them. I have thus soaked all the Peas I have sown this season, and their germination has not the least been affected. To try its effect on the germination of the Peas, I left one pint of Peas in paraffin

all night, and I sowed them by the side of the others, and find no difference, as they have all come up well.—THOMAS GREEN, *Chertsey*.

A VISIT TO TOOTING—HELLEBORES.

I HAVE no doubt that many who will glance at the signature of this article will exclaim, "What! Saul among the prophets? Has the Savage left his native wylds to explore the gardens at Tooting and write about Hellebores? Let not the cobbler leave his last, or he may degenerate into one of those interesting people which the last syllable of the plant he is now writing of so well expresses." Be it so; but what is a contributor to do? The subject of Roses has been worked to such an extent that I must have a change of theme. The relative virtues of the seedling Briar, the Manetti, and the Dog Rose have been all discussed. Roses with perfume and Roses without perfume, Roses with drooping heads, and bold, defiant, knock-me-down blooms, have had their names celebrated in glowing prose; and what more is there to say till the time comes when we shall know something of the novelties of the year, and the exhibitions furnish us with fresh matter? My theme, then, to-day is Hellebores.

"Come and see my Hellebores," wrote Mr. Barr to me, and I went all the way from Dorsetshire to Tooting to do so. I freely own the plant was almost a sealed book to me. I knew, of course, the common form of Helleborus niger, but as to the sections and their varieties I was a stranger. And it seems that I am not alone in this, for even the cognoscenti own that they are in a fog, and Mr. Barr himself is only just beginning to see daylight. But several great botanists are at work on the subject, among others Dr. Moore of the Botanic Gardens, Dublin, and the day I was at Tooting I saw numbers of specimens of hybrids and other varieties which he had sent for Mr. Barr to name.

The Hellebore may be called the Queen of the Winter, for long before the winter is over in ordinary years the Christmas Rose is in flower. Though so hardy it will do all the better for some slight protection. Mr. Barr's beds were filled with branches of Firs and Hazels, whilst a hedge 3 feet high partly encircled the bed, consequently the Hellebores did not give much evidence of having suffered from the late severe weather.

An essential feature to be observed for the successful growth of these hardy plants is situation. They require a shady place—indeed for a portion of the year it is essential that they should have this. From June till September they should not have much sun. The best place is a bed partly shaded by deciduous trees; these afford the necessary shade, but the soil must be deep and rich.

There are at least three distinct families of Hellebores, possibly more, but the three are sufficient for my present purpose. The first is the well-known Helleborus niger, the second orientalis, the third viridis. The nigers are the first to bloom, so that most of the varieties at Tooting had ceased blooming, but I saw several which were very fine. Niger minor was a very beautiful variety; n. maximus is pure white, early, but merges into rose later on in the season. Another good variety is called angustifolius. Next there is niger albus, a strange marriage of adjectives, for this seems to bring us nearest to proving that black *is* white. This is a very delicate grower and difficult to keep; the flowers come out snow white and die off sulphur-coloured.

Orientalis furnishes us with a great number of varieties. Olympicus is somewhat small, while Olympicus major is a large flower and taller grower than the other. Guttatus is white spotted with crimson. Next we have antiquorum, which is white as to its ground colour, campanulated, with beautiful sepals, broad, round, and imbricated. Pallidus is creamy-white, perhaps a little dirty in colour. I saw also some German seedlings of this family, among others Frau Frene, which is beautifully spotted, and F. C. Heinemann, spotted all over, while C. Benary is a very fine flower.

Next we have the viridis family. First there is purpurascens; the flowers are dark dove colour, the same both inside and out. Intermedia differs from this by being green inside and dark dove-coloured outside. Cupreus is dark sea green inside and dove colour outside; the flowers are not so imbricated as purpurascens. Graveolens is green inside, bronze outside; Laxus is dark sea green inside, the flowers very much imbricated and bell-shaped. Dumetorum is a small graceful flower, while gracilis is another even smaller but most graceful.

These were the principal varieties that I saw at Tooting; and though I feel that this letter is a very poor production, it is an honest attempt to give some information about a much-neglected plant, and one concerning which many people know very little. I have written enough to show that there are a great number of varieties which give many shades of colour and lovely flowers during the most gloomy months of the year. —WYLD SAVAGE.

COTTAGERS' HORTICULTURAL SOCIETY.

I SEND a schedule to be forwarded to "A YORKSHIRE AMATEUR AND CURATE." Our Society has been started seven years, during which time it has done much to improve the system of gardening among the working classes of the district, the articles shown being pronounced by the judges equal both in quantity and quality to those societies of far greater pretensions. The show is generally held about the middle of July in one of the college gardens kindly lent for the occasion by the Master and Fellows. The prize list amounts to over £20; our other expenses, such as hire of marquees and band, printing, refreshments for the Committee and others engaged on the show day, amount to about £15. Last year various performances were tried, but they added very little to our takings at the gate, although they increased our expenses by £10. We find that a good band added to the attractions of the show is sufficient to insure a good attendance of visitors on a fine day. At a village about five miles from here they find athletic sports are a great attraction, and they might take in a Yorkshire village if a suitable grass field could be obtained.

Our expenses are covered by subscription from the well-to-do inhabitants of the district and by the money taken at the gate. If that will not meet all the requirements there is a rule which gives the Committee power to deduct a per-centage from the prize money. Our judges give their services gratis. Our subscriptions vary from 1*s.* up to 20*s.* Any member by paying 1*s.* can show in as many classes as he likes, as no entrance fee is charged.—F. STOREY, *Histon Road, Cambridge*.

IF "A YORKSHIRE CURATE," who asks for information about village flower shows, will write to me I can give him experiences of both what to do and what to avoid. Having begun one on a small scale in this parish it gradually developed into an agricultural show, and at last became too large for the place, and is the largest local agricultural show in Yorkshire, which is of all other counties in England noted for the number of its shows.—C. P. PEACH, *Appleton-le-Street, Malton*.

PORTRAITS OF NEW AND NOTABLE PLANTS.

BURBIDGEA NITIDA. *Nat. ord.*, Zinziberaceæ.—Flowers orange-scarlet. "This very beautiful plant is the type of an entirely new genus, with the habit of Hedychium, but with the lip reduced to a small stipitate blade, and with no lateral inner segments of the perianth. Mr. F. W. Burbidge, who discovered it when travelling in Borneo for Messrs. Veitch, states that it grows in shady forests of the Murut district in N.W. Borneo, between the Lawas and Trusan rivers, at an altitude of 1000 to 1500 feet, in spots where there is little undergrowth; and that it thrives best where the rhizomes form matted masses on moist rocks covered with vegetable *débris*, producing ten to thirty slender flowering stems, rarely exceeding 10 feet high, and each bearing a panicle of twelve to twenty flowers. The leaves are of a lively glossy green on both surfaces, and serve to set off the rich orange-scarlet colour of the flowers. Mr. Burbidge further remarks that it is very local in its distribution, he having found it only in one place, and that this restricted distribution is shared by many other Bornean plants, especially Aroids; so that in a journey of even twenty miles one may pass through belt after belt of different kinds of Aroids, Ferns, and Orchids, just as is the case in ascending a high mountain range. Sir Joseph Hooker has named this interesting discovery in recognition of Mr. Burbidge's eminent services to horticulture, whether as a collector in Borneo or as author of 'Cultivated Plants, their Propagation and Improvement,' a work which should be in every gardener's library."—(*Bot. Mag., t. 6043.*)

ESCALLONIA FLORIBUNDA. *Nat. ord.*, Saxifrageæ.—"An ornamental evergreen free-flowering shrub, remarkable for its very wide geographical range. It was discovered by Humboldt and Bonpland in the Andes of New Grenada, at an elevation of 8400 feet, where it has since been collected by the late Dr. Jameson, Purdie, Triana, and others; to the northward it has

been found in Venezuela, on the Silla of Caraccas, at 2500 to 4000 feet, with smaller flowers than the New Grenada form; and to the south in Peru, whence it extends across the Continent to the Rio Grande do Sul province of Monte Video. The specimens from the latter country, though originally described as a variety of floribunda by Chamisso and Schlechtendal, were erected into a different species by De Candolle, who was followed in this respect by Lindley."—(*Ibid., t. 6404.*)

NEPETA SPICATA. *Nat. ord.*, Labiatæ.—"One of the commonest Himalayan Cat Mints, ranging from the Kumaon to Kashmir and Murree, at elevations of 7000 to 12,000 feet, but not found in Nepal or anywhere to the eastward of it. In its most fully developed state it forms an erect herbaceous perennial, 2 to 3 feet high, with dense spikes of bright purple flowers 3 to 4 inches long and an inch broad, and there are sometimes five and six spikes on a branch; such is the var. elata of Bentham, which, however, passes gradually into the smaller and commoner form of the plant here figured. This was sent by T. Anderson-Henry, Esq., from his rich herbaceous garden at Trinity, Edinburgh, where it flowered for the first time in September last."—(*Ibid., t. 6405.*)

NOTES AND GLEANINGS.

THE ALEXANDRA PALACE ROSE SHOW will be held on Saturday, July 5th. The fixtures at previous Shows held in the northern Palace have usually been fortunate, and good exhibitions have resulted. The schedule contains the usual number of classes, and the prizes are numerous and good.

—— AT the annual meeting recently held of the DEVON AND EXETER BOTANICAL AND HORTICULTURAL SOCIETY the Hon. Secretary presented a balance sheet, showing that the receipts amounted to £179 13*s.* 4*d.*, and the expenditure (which included £85 12*s.* for prizes) to £190 14*s.* 4*d.*; leaving a balance against the Society and due to the bank of £11 1*s.* The Secretary also presented a report of the proceedings of the Society, in which he stated that the small receipts at the August Show were the chief cause of the deficit in the accounts, although for size and excellence the Show was admitted to be one of the best the Society had ever had. New subscriptions and special prizes have been offered for the ensuing year. The following were appointed the officers for the ensuing year:—President, The Right Worshipful the Mayor; Vice-Presidents, Mr. Joshua Dixon and Mr. E. F. Studd; Committee: Rev. J. B. M. Camm; Messrs. R. N. G. Baker, W. Brock, W. Cotton, J. Geare, T. W. Gray, R. Gray, E. Knapman, H. C. Lloyd, R. Lee, F. Parkin, C. T. K. Roberts, E. N. Snow, Halford Thompson, F. Townsend, H. L. Tucker, H. Wilcocks, W. Sclater, R. T. Veitch, and Dr. Woodman. Mr. T. M. Snow was elected Treasurer.

—— NEVER have the CAMELLIAS in Messrs. Veitch's nursery at Chelsea been finer than they are now. Both large shrubs planted out and splendid specimens growing in tubs are laden with fine blooms and clothed with rich foliage. Some of the varieties have nearly ceased flowering, but sufficient remain in beauty to render a visit enjoyable. A variety of remarkable merit is Grandino Santarelli, white and rose marbled, no two blooms alike; Storeyi, Leopold I., Reine des Fleurs, and Marie Morren are particularly fine as rose or pink varieties; and of great excellence are Margherite Coleoni grand in blooms and foliage, and Augustina Superb is very beautiful. Amongst paler colours Princess Frederick William, white striped and mottled with rose, is very fine; as also are Reine des Beauties, flesh pink; Triomphe de Loddi, blush pink, a magnificent specimen; Bonomiana, fine striped variety; Madame Cachet, white marbled rose, extra fine; Jenny Lind, white tinged pink; and Jubilee Rosea, highly attractive; Ochroleuca, Conspicua, Mathotiana and its variety alba are in grand condition. Those are only a few of the varieties in the fine collection which at the present time constitutes a prominent feature of Messrs. Veitch's great establishment.

—— IN Mr. BULL'S NURSERIES AT CHELSEA many Orchids and other plants are now highly attractive. The display of Odontoglossum cirrhosum is alone worthy of a visit, the fine spikes and numerous varieties producing a charming effect. Amongst other Odontoglots now flowering are crispum, very fine; gloriosum, triumphans, in rich variety; Jenningsii, Chestertonii, Lindleyanum, angustatum, Cervantesii, Rossi majus, and a pretty pink variety. A remarkably rich Masdevallia Harryana violacea has fifty flowers. Cattleya Trianæ grande is extremely fine, and excellent also are several Dendrobiums, including a gigantic form of D. Wardianum, the lip being 1¾ by 1½ inch in diameter; D. lasioglossum, D. luteolum, very sweet; D. Freemanii in variety, D. crassinode Barberianum, fine; D. Devonianum, D. Falconerii, D. albosanguineum, and D. Cambridgeanum. The collection also includes a flowering specimen of Cymbidium Lowianum, and a fine batch of Odontoglossum vexillarium throwing up spikes vigorously. A new Phaius is also flowering, the trumpet-shaped lip being paper white with a yellow blotch and greenish buff sepals. The Ferns and other plants are in excellent condition, and contrast admirably with the richly coloured Orchids.

—— UPWARDS of a year ago we referred to a new ADIANTUM raised by Mr. F. Bause, which was just showing its character in Mr. Wills's nursery at Anerley. The plant is now established, and is highly distinct and very elegant. The growth is generally upright, the fronds then drooping gracefully and the pinnæ recurving; in that respect it is totally unlike any other of the genus, and has been referred to as the "Sleeping Adiantum." Its parentage, Mr. Bause informs us, is A. trapeziforme and A. decorum. The plant has produced spores, and reproduces itself quite true to character. Young plants are now growing freely. This distinct Fern will probably be exhibited this year under the name of Adiantum Bausei. In the same nursery the great collections of Crotons, Dracænas, and Ferns, healthy Pitcher and insectivorous plants, remarkably fine Gloxinias, and new plants generally, prove how great is the demand for high-class decorative plants, which Mr. Bause increases so largely and grows so admirably.

—— WE regret to learn that the GLASGOW SPRING SHOW held the other week was a comparative failure, the inclement weather hindering many from bringing plants to the Show. Those that had the temerity to brave the snow and frost found their plants half frozen on reaching the City Hall.

—— A CORRESPONDENT, "G. C.," requests information respecting the merits of LORD PALMERSTON PEACH. He describes a tree against a wall in an orchard house, the fruit from which was fine to look at but worthless, and consequently the tree was removed. He thinks it a pity, if the bad quality of the fruit is general, that this Peach should still be recommended.

—— THE most peculiar MANTISIA SALTATORIA is now blooming in the Victoria house at Kew; it is included in the natural order Zingiberaceæ, and was introduced from the East Indies in 1808. It derives its generic name from the resemblance it bears to the insect mantis.

—— IN many GARDENS IN SCOTLAND no work has been done to the soil since last autumn. Patches of snow may still be found in a great number of gardens. There has been great destruction amongst vegetables, gardeners generally being at their wits' end to obtain a variety for table use.

—— MR. RUSSELL, Mayfield, Falkirk, who disposed of his collection of ORCHIDS two or three years ago, has again got together a collection of these gorgeous plants. Mr. Sorely, the gardener at Mayfield, is one of our best Orchid growers, and the plants are consequently in the most vigorous health.

—— ON the old rockery at Kew several pretty little ALPINE PLANTS are now blooming. Soldanella montana and S. alpina Wheeleri are Primulaceous plants with cordate-reniform leaves, and purple fringed flowers on reflexed peduncles. Primula minima is a diminutive gem with *pinkish* purple flowers. P. acaulis cærulea has pale blue flowers, with a yellow eye and narrow white margin. P. marginata has its leaves margined with white, and mauve or lavender flowers. P. rosea also is finely coloured. Daphne Blaygayna is a fine dwarf species with close heads of creamy white flowers, and very dark green foliage.

—— IN the ORCHID HOUSE at Kew Ornithidium coccineum, a native of the West Indies, has an abundance of small red flowers clustering near the base of the growths. The fine Cypripedium Roezlii, from New Grenada, is bearing several of its striking flowers. The labellum is greenish yellow, the petals very long and narrow, of a pinkish tint, and the sepals are veined with pink.

WORK FOR THE WEEK.

HARDY FRUIT GARDEN.

Grafting.—This should be proceeded with, as, owing to the unusual coldness of the weather, fruit trees and stocks are only now beginning to move freely. Grafting is resorted to principally as a ready means of increasing the stock of desirable varieties; but some of the other advantages of the practice are sometimes over-

looked. We may briefly glance at a few. Old orchard trees very often become enfeebled and afford indifferent returns. Such may be rejuvenated by lopping one or more of the upper strong arms and grafting them with a strong-growing variety, which from their greater foliage will induce more vigorous root-action, drawing the sap to branches which are too weak to attract it themselves. The benefit of grafting such trees with a more vigorous variety is enhanced by a dressing of fresh soil or manure, so as to enable the roots to reciprocate the increased action of the head. In this way an orchard of old trees may be kept in a flourishing condition without resorting to the usual practice of beheading and re-grafting. Where the latter practice is resorted to with the object of changing an unsatisfactory for an approved kind, discrimination must be made between strong and moderate growers; for to graft a weak grower upon one naturally robust is not, as may be supposed, to supply the vigour wanting in the former's natural constitution, but to overcharge it with sap in excess of its digestive power, debilitation ensuing unless part of the stock is retained above the grafts, in which case the latter will flourish. The influence of the scion over the stock is so complete that it is doubtful if the latter has any influence on the former in three or four years, therefore in seeking to renovate old trees scions of strong-growing kinds should be employed, the root-action being dependant upon healthy leaf-growth. The grafting of the Pear upon the Quince is not in all cases satisfactory, or of Apples on the Paradise stock; for though both are strong rooters yet they are comparatively weak growers, and to graft them with Pears or Apples of similar weakness adds nothing to the stock's power of root-production, matters remaining much as they were before grafting, unless a growth of a stronger kind be encouraged upon the same stock, but kept within reasonable limits by judicious pruning. But by grafting those stocks with vigorous-growing Apples and Pears, or the practice of grafting weak-growing stocks with vigorous scions induces vigorous root-action. By grafting, therefore, rightly understood, we aim at something more than the mere employment of stocks for propagating purposes, but overcome difficulties of soil and climate to a certain extent, making a tree more serviceable, enhancing its productiveness and the quality of its fruit.

Planting Strawberries may still be continued in well-manured ground deeply dug or trenched, lifting the plants carefully if in nursery beds, or late runners layered and wintered in small pots are available, firming the soil well about them, and watering if the weather be dry. The distance between the rows should be 2 feet for the moderate growers, and 2 feet 6 inches for those of robust growth. Vicomtesse Héricart de Thury, Sir Harry, Sir Joseph Paxton, Lucas, President, James Veitch, Unser Fritz, and Dr. Hogg are fine varieties. Sir Harry and President succeed well in light soils. Old plantations should have a close scrutiny for weeds of a perennial character, and be cleared of any decayed growths, lightly forking over the soil between the rows and plants if not already done. See that the protective material for insuring safety to the fruit blossom is in readiness, and promptly employed in case of frost after the blossoms expand. The prospect of good crops of fruit is very satisfactory.

FRUIT HOUSES.

Vines.—April is the best time for planting Vines, and upon the proper time and manner of doing so depends much of the after success. The Vines, it is presumed, are in 8 or 9-inch pots, having been cut back in December or subsequently, and have been kept in a cool house or pit, the eyes having started, and it may be that they have shoots 2 inches or more in length. When the shoots are of about that length the Vines should be turned out of the pots, removing every particle of the soil, preserving all the fibrous roots, and if any of the large woody roots are bruised or wrenched in disentangling them cut them back so as to remove the injured parts. Having the soil of the border the desired height place the Vines in position, spread out the roots perfectly flat and straight, and cover them with from 4 to 6 inches of soil, working it well in amongst them with the hand, giving a good watering at a temperature of 90° to 100°, mulching with a little short partially decayed litter. A good start is of importance, and is not secured by forcing growth immediately after planting, but allow them to take their own time. A high temperature until roots are formed is prejudicial, but they are excited by and correspond to the leaf growth; therefore sprinkle the house and the Vines two or three times a day, maintaining a genial atmosphere. Allow a day temperature of 65° from sun heat, advancing to 75° with moderate ventilation, closing at that and not allowing the temperature to fall below 50° at night. Young Vines planted last spring will be breaking naturally, and when they are fairly growing they should be assisted by a little fire heat, especially during cold nights. Remove all buds but one at each joint, and reduce the side shoots to 18 inches distance apart on each side of the cane, and crop upon those only, the leader not being allowed to carry any fruit. Crop very lightly. If there be any supernumeraries they may of course be fruited heavily, and after the second or at most third year should be rooted out. The permanent Vines should not be planted less than 4 feet 6 inches apart, better 5 feet, and strong growers 6 feet, the supernumeraries, of course, being placed between. In succession houses let there be no delay in thinning the bunches and berries, for superfluities of either, so long as they remain on the Vine, are diminishing the supply of nutriment that would otherwise improve the crop. See that the borders have plenty of water. One-half of the failures in Grape culture arises from a deficiency of nutriment in liquid form during growth. Houses in which the Grapes are colouring should have a thorough watering and the inside borders mulched, affording a liberal and constant supply of dry warm air and a moderate low night temperature. Late Vines will now be making rapid progress. Attend to disbudding and tying-out as they require it, closing early in the afternoon with sun heat, dispensing with fire heat as much as possible. Where Grapes are fully ripe a reduction in temperature may be allowed with advantage, but the air moisture must not be allowed to entirely cease, as red spider will advance apace; besides, atmospheric moisture is not injurious to ripe Grapes at this season, provided it be accompanied by free ventilation.

FLOWER GARDEN.

Lawns.—Any that are thin and mossy may be improved by a thorough raking with an iron rake, applying a top-dressing of rich compost sifted so as to free it of stones, and if wood ashes be added it will destroy the moss; but prior to this any coarse weeds should be grubbed up, the top-dressing filling up the holes. Give another good raking upon the first prospect of rain, and sow with grass seeds, suitable mixtures being kept by the principal seedsmen. After sowing rake the surface lightly and roll it firmly. Grass edgings should be cut at least once a year, and are best done after rain, as they are then soft, and in that state are easily rolled down. The cutting should be done neatly and with the strictest regularity—an easy operation to perform if the edges are straight, but it requires some skill if they are curved.

Herbaceous plants are the first to gladden us with their flowers, and from the first dawn of spring to the setting-in of frost and snow there is always something to cheer us. It may be necessary to divide and re-arrange many of them; this applies to such as are not in active growth, and which would have their flowering impaired by disturbance. Before replanting apply some rich manure or fresh soil, to be worked well in. Double Pyrethrums are a most useful class of plants, flowering early in summer when showy flowers are not over-plentiful, the flowers being almost equal in form and colour to good Asters, and should be in every garden. Pentstemons make a fine display, and are valuable for cutting. Delphiniums are really fine for cutting, and should be planted at once. Alströmerias have showy lasting flowers, and should be planted so that the roots are beyond the reach of frost. Plant Gladioluses at intervals to afford a succession of spikes, and complete the planting of Hollyhocks, the ground having previously been well manured. Seeds of hardy annuals should be sown, taking care to have plenty of Sweet Peas, Mignonette, and other sweet-scented flowers near the walks. The principal sowing of Stocks, Asters, and other kinds of half-hardy annuals should be made in frames over gentle heat. Propagate Dahlias. Those established in small pots should be placed in frames or pits from which frost is excluded, and keep the plants near the glass to render them steady. Continue to increase the stock of bedding plants to meet the probable requirements, and endeavour to produce dwarf stocky plants, as they afford the best results. Seeds of most kinds of hardy perennials should now be sown.

PLANT HOUSES.

Orchids.—In the East Indian house a temperature of 65° to 70° by night and 80° by day should be maintained, ventilation being necessary during fine days from about nine o'clock in the morning to four in the afternoon. Shading will be required: painting the glass is objectionable, as from constantly darkening the house it produces a sickly growth. Syringe the plants early in the morning and again in the afternoon of fine days, guarding against damping the flowers, as they thereby become spotted and unsightly. Cattleyas in growth should be separated from those that have completed the growth, as C. Mossiæ, Lælia purpurata, and others, which should be placed at the coolest end of the house and have less moisture; but Cattleyas guttata and labiata, Lælia elegans, and many others that are growing will require to be kept moist. The smaller kinds of Cattleyas and Lælias do best on blocks where they can have a good circulation of air. Barkerias must be kept cool and damp, syringing them two or three times a day when the weather is fine. Cœlogyne cristata, now that it is started into growth, must be frequently syringed, and as soon as fresh roots are being made the plants require a good supply of water. Where Lycastes need repotting it should be done immediately after flowering, using fibrous peat with good drainage, as they require plenty of water in their growing season. Miltonias must be shaded, and have plenty of water. Cypripediums must not want water, or both plants and flowers will suffer. Dendrobiums will now require more water at the roots, employing it, however, with care, especially to the delicate-rooted kinds. Avoid overpotting, as they appear to do best when pinched for pot room. Such sorts as D. Parishii, Wardianum, Cambridgeanum, Devonianum, &c., do best grown in baskets or saucers suspended from the roof. Continue to top-dress or repot any plants making new growths.

TRADE CATALOGUES RECEIVED.

Charles Turner, Royal Nurseries, Slough.—*Catalogue of Plants and Florists' Flowers.*

Woolson & Co., Passaic, New Jersey, U.S.A.—*Catalogues of North American Bulbs, Roots, &c., and Hardy Perennials.*

J. B. A. Deleuil, Au Haut de la Rue Paradis, Marseilles.—*Catalogue of Amaryllises, Begonias, Succulents, &c.*

Thos. S. Ware, Hale Farm Nurseries, Tottenham.—*Spring Catalogue of Hardy Florists' Flowers.*

A. M. C. Jongkindt Coninck, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.—*List of Hardy Perennials and Rock Plants.*

Rawlings Brothers, Romford, Essex.—*Catalogue of Dahlias.*

James Lye, Cliffe Hall, Market Lavington, Wilts.—*List of New Fuchsias and Pelargoniums.*

Richard Dean, Ealing.—*Catalogue of Primulas and Hardy Herbaceous Plants.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

CANTERBURY ROSE SOCIETY. (*Exhibitor*).—It is to have a show in July; particulars will probably be advertised.

VALUE OF PLANTS (*C. E.*).—It is impossible for anyone to estimate the value of plants without seeing them. You had better consult a local nurseryman.

DIGGING AND TRENCHING (*Curious*).—The usual prices for digging light garden ground a spit deep are 1½*d.* and 2*d.* per rod, heavy ground 3*d.*; trenching light soil two spits deep 10*d.* per rod, heavy soil 1*s.*; bastard trenching of light soil 6*d.* per rod, heavy soil 8*d.* A statute acre of land may be dug by a man with the spade, to a depth of 9 to 12 inches in a free soil, in fourteen to twenty-one days. It is impossible for anyone to give an estimate of cost for keeping a garden without seeing it; your best plan will be to ask two or three jobbing gardeners to give you an estimate, choosing the one most suitable.

PRESERVING BLINDS (*A. M. M., Croydon*).—We do not know of anything more simple and effectual for rendering canvas blinds more durable than dressing them with boiled linseed oil.

JOHN SHILLET (*John Davis*).—We do not know the person you refer to.

MARECHAL NIEL ROSE (*Constant Subscriber*).—Although it is regarded as a Noisette Rose by many rosarians, and as such is distinguished in the catalogues of some nurserymen, yet others class it as a Tea. If we take as a typical Noisette Rose Aimée Vibert and a typical Tea Rose Devoniensis we cannot fail to notice that Maréchal Niel possesses the characteristics of the latter much more markedly than the former. You will not err in classing it as a Tea. An essential character of Noisette Roses is that the flowers are produced in clusters, but in Maréchal Niel they are produced singly. It really partakes of the character of both sections, and we should class it a Hybrid Tea.

PLEIONE CULTURE (*A Young Gardener*).—Pleiones should be grown in pots half filled with crocks, employing a mixture of rough peat, old dried cow dung, and sphagnum, elevating the pseudobulbs above the rims of the pots. Potting should be performed immediately the flowers fade. During the growing season the plants require copious supplies of water until the leaves change colour, when a lessened supply is necessary. When the pseudobulbs are fully formed, only sufficient water is needed to prevent them from shrivelling. When signs of growth are apparent after the resting period, increase the water supply; and as flowering approaches water freely. A shelf near the glass in a well-heated stove is a suitable position for them.

PHAJUS GRANDIFOLIUS (*Idem*).—The plants require very free drainage and a rough open compost of turfy loam, charcoal, leaf soil, and dried cow dung. During growth they must be watered liberally, and be kept in a stove temperature so as to produce fine foliage. They may then be placed in a cooler temperature, the supply of water being lessened, so as to afford them a period of rest. They must not, however, be kept so dry as to injure them, which we fear is the case occasionally.

CASSIA CORYMBOSA (*Idem*).—You may pinch off the tops now, and with good culture the plants will flower freely in due time. The best plants we have seen were grown by Mr. Moult at Ravensworth Castle, whose mode of culture is as follows: In February the plants are pruned back to about two eyes of the young wood; they are then potted in a compost of about two parts loam and one part peat, to which is added sufficient sand to make it sharp. They are started in heat—say a vinery or intermediate stove—from whence they are removed to a greenhouse to prepare them for being placed outside in the first or second week of June, where they do not get the sun too strong; this makes them firm and short-jointed, and they are a mass of golden yellow for six months.

GROWING VEGETABLES IN LONDON (*A Reader*).—If vegetables cannot be grown without such aids as those referred to they cannot be grown at all. The great obstacle to the growth of vegetables in the back yards of London is the want of air. No vegetable succeeds so well in confined city gardens as the Scarlet Runner.

FUCHSIA EARL OF BEACONSFIELD (*S. D. P.*).—It is a very free-growing variety, producing very large clusters of flowers. It is very useful for decorative purposes, and requires rich soil and copious supplies of water, also liquid manure when flowering freely. No variety is more easy to grow. It was raised by Mr. Laing, Stanstead Park Nursery, Forest Hill, London.

PEACH TREES UNHEALTHY (*T. L.*).—The growths sent suggest that the trees have suffered from two causes—namely, an absence of sun, which has rendered the foliage destitute of tissue, and deficient root-action. It is not uncommon for trees with defective root-action to start into growth freely and then to cease growing. The first growth results from the sap stored in the trees, and this is exhausted, not unfrequently by too much heat, before the roots become sufficiently active to maintain the supply to insure unchecked growth. The soil in which your trees are growing is probably cold, wet, or in other respects ungenial. Defective root-action is the chief cause of the unsatisfactory condition of your trees; but not knowing the character of the soil we are unable to suggest a remedy.

GROWING ANNUALS (*A Lady Gardener*).—You will not, we think, succeed in growing the Convolvuluses in pots. The seed should be sown in pots, and the plants be planted out in rich soil in May; or the seed may be sown in May where the plants are intended to flower. If you attempt growing them in pots three or four plants must be placed in a 10-inch pot to be plunged in the garden. Rich firm soil will be needed, and copious supplies of water, giving liquid manure when the pots are filled with roots. Thunbergia alata must be sown in heat, the plants being grown in a moderately warm and very light house. When large enough three plants may be placed in 4-inch pots, to be eventually shifted into 8-inch pots. They require rich soil, plenty of water, and to be frequently syringed during the summer: they need sticks or a trellis to support them. Globe Amaranthus should be grown in heat, the plants being placed near the glass. Pot them as advised for Thunbergias. A Cucumber frame having a night temperature of not less than 60° is suitable for the Amaranthuses during the early period of their growth; in summer they succeed in a greenhouse. They seldom require staking. Schizanthuses may be grown three plants in a pot, or may be planted out in May. A shelf or a greenhouse is a suitable place for them at the present time, afterwards removing them to cold frames. Godetia Lady Albemarle may be sown in 6-inch pots placed in a light frame, thinning out the plants to three in each pot until they show flowers, then remove the two worst, keeping only the best variety. The seedlings vary greatly in colour and habit. Seed may also be sown in the open ground at the present time. Violas strike freely under handlights in autumn, choosing short fresh growths, and dibbling them in moist sandy soil.

FICUS ELASTICA UNHEALTHY (*J. H., Harpenden*).—The leaf sent appears to have been frozen and the sap vessels ruptured, hence the rusted appearance of the foliage. Such leaves as those sent cannot be preserved on the plant. Remove a portion of the surface soil from the pot, and top-dress with a compost of turfy loam and decayed manure; water carefully and sponge the foliage frequently, and your plant may regain at last a portion of its lost vigour, and will produce new leaves freely, but not, we fear, on the stem near the pot.

SHADING CONSERVATORY (*E. R. P.*).—If you mix whiting and skimmed milk, and apply to the glass with a brush, it will afford you the shade you require. If when the whiting is wet the surface is stippled with a dry soft brush, the glass will have a frosted appearance.

GARDEN STRUCTURE (*Doubtful*).—Neither a Maréchal Niel Rose nor any other plant or fruit tree needing light will flourish under an opaque roof. Vines or Roses will do on the light side of the structure, and Ferns will thrive on the other side. The front arrangement of the house is good, and Vines or Roses may be planted outside, the stems being taken inside through the woodwork, and the growths trained thinly about a foot from the glass.

HYACINTHS AFTER FLOWERING (*Idem*).—The spikes should be removed immediately the flowers fade, and water should be applied regularly so long as the foliage remains green. The better foliage you can produce, and this under the influence of full light and abundance of air, the better spikes will the bulbs produce another year. They will not, however, be so fine as the spikes produced by imported bulbs. The suckers to which you refer will, if grown on outdoors, form flowering bulbs in two or three years.

GROWTH ON SURFACE OF POT (*E. G.*).—The specimens you sent were quite shrivelled. Lichens and Marchantias very often appear on the surface of pans or pots filled with peat. We should still keep the soil moist, as Ferns may still appear in the mass of vegetation. The frond sent appears to be of a Trichomanes.

GREENHOUSE TUBEROUS PLANTS (*S. L. B.*).—All the plants named may be had of any of the principal nurserymen, and will be in pots when received. The treatment they require being given in "Work for the Week," in the section devoted to stove and greenhouse plants.

BUDDING PEARS AND APPLES (*F. J.*).—The early part of July is a proper time, the operation being performed in a similar manner to the budding of Roses. The buds are usually placed low down upon the main stem of the stock, as in budding Manetti stocks. The Evergreen Rose generally flowers abundantly, and when the plants become strong they require plenty of space.

FLOWER BED ARRANGEMENTS (*J. H. R., and An Irish Subscriber*).—Notes on this subject will shortly appear, from which you may derive useful information.

TEA ROSE UNHEALTHY (*O. G. R.*).—The plant is weakly, probably by defective root-action. The season has also been very unfavourable to growing Roses under glass, owing to an absence of sun. Cut out the weak growths as you propose. Remove the surface soil from the pot down to the roots (seeing at the same time that the drainage is efficient), and top-dress with turfy loam just blackened with soot. Keep the plant in a light position in the greenhouse until May, or when severe frosts are over, then plunge it in ashes in the open air, and it will probably make good growth by the autumn, and flower freely next year. Water must be applied judiciously, liquid manure not being necessary until the pot is filled with roots. We know of no neater labels for Roses than the round tablets about the size of a florin, that are sold by most nurserymen and Rose-growers.

PEACH TREES INJURED (*I. of W.*).—As the earlier Peaches were not injured, while the later varieties have suffered considerably, good evidence is afforded that the wood that was injured was not well matured. In future only apply the mixture of half the strength; it will answer the purpose required, and will not injure the trees. Salt may be applied to the Asparagus beds at the rate of 2 ozs. per square yard.

ORCHID CULTURE (*C. H. S.*).—If you follow the directions contained in the "Orchid Grower's Manual," published by Mr. B. S. Williams, Victoria Nurseries, Holloway, and consult the notes that appear from time to time in "Work for the Week" in our columns, you will have no difficulty in growing these beautiful plants.

ERRATUM.—The size of the blind referred to by Mr. Igguldden on page 254 as costing 6*s.* 6*d.* was stated to be 15 feet by 4: it should have been "15 feet by 7."

NAMES OF FRUITS (*T. W. H.*).—Duck's Bill or Sussex Pearmain.

NAMES OF PLANTS (*S. H. S.*).—We cannot name your shrub without

flowers. (*Constant Reader*).—1, Dactylis glomerata variegata. There is another variety with yellow striped foliage. 2, Salvia Heerii; 3, We cannot name without flowers. (*G. H.*).—Lachenalia tricolor. (*J. D., Manchester*).—1, Ficus species; 2, Hippeastrum reticulatum; 3, Aspidistra lurida variegata; 5, Chamædorea formosa; 4 and 6, Not sufficient for identification. (*A. C.*).—1, Andromeda floribunda; 2, Probably Vaccinium buxifolium; 3, Sedum acre; 4, Mesembryanthemum species; 5, Erica mediterranea carnea. (*T. R. G.*).—1, Primula verticillata, var. abyssinica; 2, Andromeda floribunda; 3, Cydonia japonica. (*W. D. H.*).—Alyssum saxatile, var. compacta.

We have received numerous Camellias that we are unable to name. We do not undertake to name varieties of florists' flowers which are too numerous and too much alike, some of them varying more in the habits of the plants than in the form and colour of the flowers.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

CULTIVATION OF SUMMER TARES OR VETCHES.

This crop seems to increase in value if we can rely upon the agricultural statistics as now collected, for although the returns are not made compulsory, yet for all ordinary purposes and calculations they are exceedingly useful. We find that the acreage of summer vetches has largely increased as grown in Great Britain, especially within the past few years, the last returns giving the extent as upwards of 420,000 acres, or nearly as great an area as that seeded with beans.

Having treated of the cultivation of winter vetches in this Journal in vol. xxxv., page 211, we shall devote the space now at our command to a description of the cultivation and advantages of the growth of the summer variety only. There are two sorts of seed, the ordinary sort and the Scotch Gore vetch, the latter being so much larger in the grain that there cannot easily be any mistake made in selecting the seed; but not so with the former for it is so much like the winter vetch both in size and colour that the one is often bought and sold for the other. There is also an idea prevalent that by continued sowing the summer sort will become so acclimatised as to answer the purpose of the winter variety; but we object to this theory and cannot recommend it, believing that it will prove a fallacy in practice. We therefore advise the home farmer to select the Scotch Gore vetch for spring and summer sowing.

The preparation of the land for summer vetches has important advantages over the winter variety as a fallow or ameliorating crop, particularly upon heavy and strong soils, because when the land is at all foul with couch grass it should have an autumn fallow and be cleaned, and then ploughed up deeply to remain during the winter. The advantage of this mode of proceeding is self-evident in comparison with land seeded in the autumn, and consequently lying cold and wet during the winter, and the benefit will be found in the next cereal crop whether of wheat or other grain. So valuable is this crop of tares now considered on most soils, that it forms a part in the rotation of all well-conducted farms where a large flock of sheep or dairy of cows are maintained. Nor is it necessary where the land is in fair condition to apply manure with the seed, if the crop is to be fed off upon the land by sheep. When, however, it is required for soiling cattle or horses, it is well to apply broadcast at seed time behind the drill 1½ cwt. per acre of nitrate of soda or Peruvian guano, as we cannot very well have the crop too gross, particularly if oats are sown with the vetches in the proportion of one bushel of oats and two bushels of vetches per acre. We prefer the White Canadian oats for this purpose, as they come very quickly, and shelter the vetches by their broad flag and leaf, and thus often secure the vetches from an attack of blight commonly called red rust, to which this crop is especially liable—in fact it is the only drawback to the crop which we know, and this only happens in particular seasons and generally on soils having a northern aspect. Some cereals, such as oats, rye, &c., are also necessary to hold up the crop, because where the land is fertile the vetches are sure to fall down unless sustained by a straw crop, and it is only upon the lightest and poorest soils where the straw crop should not be sown in admixture. We cannot pass over the importance of a double crop, because, like peas, the summer vetches answer extremely well when drilled with spring beans; and we cannot imagine a more profitable fallow crop than the cluster beans and summer vetches being drilled with two bushels of beans and one bushel of vetches per acre, and managed precisely in the same way if saved for seed as directed for beans and peas. There is, however, this difference, that instead of being damaged by the aphides, to which both beans and peas are subject, the vetches are not attacked by these insects, but suffer only occasionally from red rust. There is another important point; for in case this double crop is not all required for seed, they may be cut together whilst they are both in full pod, and passed through the chaff-cutter for the purpose of feeding fatting cattle; and they are sometimes worth more in this way than when harvested for seed, as in the latter case the haulm is either almost lost or deteriorated.

When the vetches are grown alone or with oats they give a very full and heavy crop either as fodder for cattle or for hurdling off for sheep in the fields. They are, however, sometimes cut for hay whilst the vetches are in full bloom and the oats just coming into haw, at which time they make good hay if they can be stacked without rain, and they may be put into rick whilst comparatively green, in which case if they do not overheat, a crop of 3 tons of hay per acre is not unusual, and although it is often too coarse for sheep hay it is good when used as chaff for horses and fatting cattle or dairy cows. The value of green vetches for soiling cattle or feeding sheep is great; if used for the former in the green state it is proved by analysis as compared with the best pasture that 457 lbs. is the equivalent to 100 lbs. of hay in feeding value. When used for feeding sheep and folded off with a change to clover or saintfoin once a day, it is admitted by all flockmasters as of the highest importance to bring the lambs into good forward condition, and should always form part of their food at the time of weaning. It is especially good for feeding tegs or wether sheep upon the heavy land farms, not only because the stock do so well upon it, but because it is so well calculated to disintegrate and ameliorate the soil as a preparation for the wheat crop.

We have occasionally heard the complaint that vetches are a bad preparation upon light land (after being fed off) for the turnip crop which follows, but this only happens in very dry seasons: this matter, may, however, be met by planting cabbage or Thousand-headed kale. In the rotations of cropping on most soils vetches form a useful part; for instance, in the ordinary four-course instead of sowing one-fourth with clover, one-eighth may be vetches and alternated in the next course, so that clover may be sown only once in eight years. Upon heavy land the vetches may be sown and take its part in the green cropping with other crops. For instance, if trifolium is fed off in the spring, summer vetches with tall rape—we do not like the dwarf rape—may be sown as fast as the land is cleared; this mixture only requires about eleven weeks to produce a full crop, and it is not only fit for sheep to feed off, but is one of the best of all our green fodder crops for milch cows for which we know nothing so good during September and October. Any portion of vetches fed off rather late may be succeeded by mustard, and upon strong soils the mustard being ploughed in and properly buried by a chain and weight attached to the plough forms one of the best preparations for wheat.

When the crop is harvested for seed, the seed generally commands a high price per bushel as compared with either beans or peas; and in the event of any depreciation of value for sale the home farmer can always consume them with cattle or sheep, as they are equally valuable and nearly approach by analysis the value of beans, peas, lentils, &c., and contain a large amount of flesh and muscle-forming matters, and in growing a double crop with beans the vetches are easily separated if not used and consumed in conjunction.

WORK ON THE HOME FARM.

Horse Labour.—The fine weather which has extended over the greater part of the month of March we must accept as Nature's compensation for an unusually severe winter; and although tillage work upon the land was impossible for nearly three months, and the horse labour in consequence having been seriously in arrears, much valuable work has lately been carried out upon the home farm by sowing beans, peas, and barley, planting early potatoes, &c.; and should the month of April prove as favourable as March we shall on the 1st of May have but few or no arrears of horse labour to complain of. We will suppose that the early sorts of potatoes have been planted during March; we must, however, now look to the planting of the main crop of the second early varieties. We know none so worthy of attention as the Champion. The importations from Scotland into the various ports of the southern and east and west midland counties have been of very fine quality, and as yet this variety has evaded the disease to which so many other varieties have succumbed. This variety, too, commands a ready sale, and is much esteemed by the consumers. It is an excellent cropper, and we recommend it for planting in April. The samples we have seen sent from Scotland are very large tubers, and are selling at the stores of the merchants at from £4 5*s.* to £4 15*s.* per ton, but in consequence of the tubers being large the quantity required for seeding an acre of land if properly cut will be from 13 cwt. to 15 cwt. We will suppose that the

land intended for potatoes has by this time been well tilled, and if manured before winter no dressing will now be required. If not, 4 cwt. of Peruvian guano, broken perfectly fine and mixed with an equal bulk of damp ashes, should be used per acre and applied by hand in the furrow with the potato sets. In our own practice we have found that this artificial manure as it is called is preferable to the largest quantity of town or yard manure usually applied. The distance we recommend for planting is 2 feet apart between the lines and 1 foot between the sets. It is necessary for all the second early varieties to have plenty of room, for they always throw more haulm than the earlier varieties except the white-blossomed Fluke, which gives but little haulm. We must also call the attention of home farmers to the fact that the sooner barley is sown the better, if a malting sample is required, as by sowing after the middle of April there is no surety of obtaining it; nor can we advise sowing barley at all after that period, because other grain would pay better, particularly drege, a mixture of barley and oats for home consumption. We have repeatedly grown twelve quarters of drege per acre when barley sown at the same time would not produce more than five quarters per acre of grinding barley; in fact upon the mixed soils we think white Canadian oats pay better than barley. We have just seen samples sown weighing 47 lbs. per bushel, besides which the straw of these white oats is the best fodder for cattle that can be grown on the home farm, we having used it for fourteen years as food for the fatting bullocks instead of hay with the greatest advantage.

Hand Labour.—Where draining is required on the arable land the home farmer it is hoped will not have missed the opportunity of setting out the work during March, at which time all the wettest portions of the field could have been easily observed and the work marked out. Now is the time for digging the drains, and for the work to be finished off before the land is required for sowing with Swedes, &c., or late mangold. We do not object to mangold being drilled as late as the second week of May if the land is well tilled and liberally dressed with manure, because full crops may be grown by leaving more plants in the rows. In draining heavy land the drains should be cut in the direction of the fall of the land about 4 feet in depth, and where the land is flat without sufficient fall a cross drain must be cut as a leader at a greater depth so as to insure a sufficient fall for the water to run. The subject of draining on different soils will be again alluded to. All the meadow lands intended for hay should now be laid up, and in case of any rushes or coarse grass being left, the growth of last autumn, they should be cut with the scythe and carried away, for it not only impedes the growth of the young grasses, but injures the quality of the hay if allowed to remain. If the land is intended to be fed off during the season the small, or aquatic rushes as we call them, should also be cut, but the strong trench or turf rushes should be cut with the turf cutter and burned into ashes; the latter do not come again, but the former will continue to come unless the pasture is thoroughly drained, as their roots extend under the surface in the same way as the white-rooted couch grass. Upon the hill farms and backward climates the mangold may now be drilled, the sooner the better, because the bulbs do not ripen so early as in the districts more favoured as regards soil and situation.

CANARY TREATMENT.—No. 3.

THE breeding season has opened unfortunately, judging from information which has reached me from various quarters. The loss of young birds and the non-vitality of eggs are not to be wondered at considering the pernicious weather lately experienced. But I am not one who ever believed in the success of too early breeding, notwithstanding the old maxim, "Never venture never win." At the best of times it is a venture, but how often the cold weather will kill the choicest of hens—hens selected with much care and at considerable expense, and sacrificed through an over-anxiety to become possessed of early birds.

The practice of placing a couple of hens to one cock bird is not so commonly practised as in days gone by. The London breeders, I know from my own observations, have favoured the above plan, especially as regarded the breeding of the Canary known more particularly by them as the "London Fancy." The system adopted has been to familiarise the hens with each other by keeping them together some time prior to the breeding season, and then "putting up" the birds to breed. Having in my earlier days of Canary breeding received many lessons from London fanciers, whom I looked upon as schoolmasters in the cause, I adopted their method with various breeds, but in no one instance did I ever find matters run so smoothly as when breeding with pairs of birds well matched and paired before they were placed in the breeding compartments. Experience has proved to my satisfaction, that however well a couple of hens may become familiarised in their dispositions, still they will poach from each other's domain at the particular time when they are constructing their nests. This leads to occasional squabbling in the household, sometimes resulting in the entire disarrangement of the partly constructed nests, and at other times the bruising and destroying of each other's eggs, and not unfrequently the two hens will lay claim to one particular nesting place, wherein both hens will deposit their eggs. When this happens, and the breeding cage or partition has not a slide to separate the hens, there is no alternative but to take away one of the hens and start her in another cage. Thus it is not only a disappointment but a loss of time.

Breeding in a suitable room is another matter entirely, and affords a better opportunity for success when it is wished to pair more than one hen with a cock bird. There the Canaries have plenty of space, and six or eight hens may be placed with a couple of vigorous male birds. If the room has a south-west aspect all the better, for birds like to perch in the sun occasionally; or if the bird room be the attic it will suit the birds admirably. During my bird-breeding career the best success I ever had was in the topmost room of the dwelling, which had the advantage of a skylight, and afforded ready means of ventilation. My plan has been always to furnish more nest baskets or boxes than there were hen birds, so that they might make some choice of particular situations. Some hen birds are very fanciful in their choice, and will breed in the corner of a room or attempt to construct a nest in a most unlikely place. When you find this happen place there a nest box. Snug recluses can be made by fixing a small piece of boarding to shield a hen from the sight of another, which is often an advantage. Sometimes when they build in close proximity to each other they will show much fretfulness. The branch of a tree inserted in a large garden pot of soil with perches placed here and there or anywhere in the room, the floor of which should be well strewed with grit sand, with also a spacious shallow bath for splashing in, will so aid the birds in their diversions that they will not interfere so much with each other's nests as when two hens are limited to space in a cage. When you see the hens show signs of breeding by hopping in and out of the baskets throw upon the floor a good grasp of well-pulled moss, and as you perceive the hens use it replenish the supply until the nests are about ready to be lined with a softer material, such as cow or deer's hair. When the birds are breeding a fresh bath daily should be given, especially when the hens are about depositing their eggs. The bath is not only refreshing, but furnishes moisture, which is essential in dry weather.

Having in previous chapters quoted from a very old authority some remarks concerning the construction of nests, the writer further says, "They must have but one basket given them at a time to make their nest, for, as has been well observed, when they have two given them they sometimes carry into one and sometimes into the other, and so they do nothing to the purpose; whereas when they have but one given them they make their nests orderly at once, and think of nothing but hatching their young. Twelve days after the young are hatched you must put in another basket on the other side, for they never fail to make their second nest, though they are at the same time breeding their young. For my part I make their nest myself, especially the second, third, and fourth, and only allow them to make their first. That fatigues them the less, and if it happens not to please them they have less trouble to mend it than they would have to make the whole. My Canary birds like it very well, for they love to have their work done for them."—GEO. J. BARNESBY.

VARIETIES.

WE are frequently asked questions about the use of Turkey hens as the foster-mothers for other chickens. We have now for several years reared a brood or two of Dorkings each summer under Turkey hens, and can speak most highly in their favour. Before we had experience of them we fancied that they would be apt to crush eggs and chickens, but we have never had but one hen that did so, and that from over-anxiety when the chickens were hatching. It is difficult to get them to sit in time for early broods, but we have had many fine-grown May chickens so reared. Where there is a good range the Turkey hen takes the fullest advantage of it, ever leading her brood to fresh pasture; she does not drag them hastily along, but marches slowly, and stands from time to time while they peck around her. The length of time, too, that she remains with them seems to keep them growing and chicken-like at an age that birds are generally maturing. Our own birds so reared have turned out specially hardy, large in frame and strong in bone.

—— WE continue to receive accounts of incubator work. We should be very glad to receive statistics for publication, as well as communications relative to the process. At last there seems some chance of the art of artificial incubation being brought to something like perfection, or rather of its revival in a practical and useful form. We are averse to making comparisons, but must say that nearly all the instances of real success which have been brought to our notice have been with a Christy's incubator. Several fanciers, formerly strongly against all artificial incubation, write in high praise of them.

—— MORE and more accounts reach us of the infertility of eggs this season. We are not surprised at it after the succession of winters we have had. Early chickens seen from the yards of one or two fanciers will not appear; we strongly warn those who wish

their birds of the year in the end to make up for this deficiency by their excellence not to attempt to force them with the object of winning a prize or two in the early autumn. The effects of over-stimulating diet are always bad, and in the end lead to disappointment.

—— We have received the schedule of the Bath and West of England Society's Show, to be held at Exeter on June 2nd, 3rd, 4th, 5th, and 6th. The number of cups for poultry and Pigeons remain as last year, being much reduced from the scale of former years. The classification is good—viz., fifty-one classes for poultry, twenty-two for Pigeons. The latter are still shown in pairs; we are glad to see this arrangement occasionally; there are points in Pigeons which can be best seen when they are shown singly, but in pairs they have a happy and contented air which they seldom have alone. We wish there were a few shows wherein the poultry classes pairs of hens were still to be seen. The entries for poultry and Pigeons close on May 1st.

—— The Executive Committee of the Southport National Agricultural Society have adopted a schedule of prizes, amounting to £1100, for the annual meeting to be held in Southport on Thursday and Friday, July 31st, and August 1st, 1879, and request subscriptions for special prizes for any of the classes.

—— The Committee of the Birmingham Agricultural Exhibition Society meet on the 17th inst. to revise the prize list for poultry, &c., and any suggestions as to alterations, &c., should reach Mr. J. B. Lythall, the Secretary, before that day.

—— Among the monthly publications we have received which are always acceptable are part 18 of "The Illustrated Book of Canaries and Cage Birds," and part 30 of "The Illustrated Book of Poultry," both issued by Messrs. Cassell, Petter, & Galpin. The former contains two handsome plates representing the Ring-necked Parakeet and the Plum-headed Parakeet, the Combasson Finch, the Silver Bell, the Red Grass Finch, the St. Helena Waxbill, the Bronze Manikin, and the Cut Throat. The latter has a fine representation of Mr. Brierley's Brown-breasted Red Game fowls.

—— The following, relative to spurious honey, is extracted from an American paper:—"Honey dealers in large cities have long been in the habit of mixing glucose and honey together. Pieces of comb honey are put into glass receptacles and then filled up with glucose. These dealers claim that both retailers and consumers demand it in order to prevent granulation. These small packages of honey are generally purchased by those desiring a panacea for all ills of the respiratory organs more than as an article of food, and it is a shame that the afflicted should thus be imposed upon."

—— The *Prairie Farmer* states that the agriculturists of Pennsylvania propose to secure the passage of a law, if possible, which will regulate the manufacture and sale of commercial fertilisers. It provides that packages of fertilisers shall have the name of the manufacturer, &c., and analysis of per-centage of the constituents, printed plainly on the outside, and an analysis must be filed with the Secretary of the State Board of Agriculture. Any person selling a fertiliser without an analysis, or by a false analysis, may be fined not less than 25 dollars nor more than 200 dollars for each offence, and also forfeit for the use of the purchaser the amount of the bill of goods thus fraudulently sold.

—— Replying to a correspondent in *Nature*, who asks whether the identity of bee poison with formic acid has yet been determined, Mr. A. H. Church observes: "Some sixteen years ago I made a few experiments with the poison from wasp-stings, and found to my astonishment that it was invariably alkaline instead of acid. A living wasp, duly held in the cavity of a perforated cork, was easily induced to sting a piece of turmeric paper; a brown-red spot immediately appeared."

MODERN BEE MANAGEMENT.—No. 8.

THE QUEEN BEE.

In former papers I have more than once coupled prospects of success with the proviso that the hive should have a good fertile queen. Of course there are various causes why even with the best of queens a stock may go to ruin; but it may be laid down as a maxim that no stock can ever yield great results without a good queen. The life of a worker bee is short. During the summer a whole generation passes away every six weeks, not to speak of the thousands of bees the natural term of which is cut short by various accidents. To keep up a steady population during the honey season of perhaps fifty thousand there is probably required a daily setting of two thousand eggs, and this is proved to be within the powers of the best queens. Well-authenticated instances are on record of queens laying over three thousand eggs a day for many weeks in succession. With the means and the skill to take advantage of this extraordinary fecundity the bee-keeper may obtain results that seem almost fabulous.

Without entering on anything like a full natural history of the queen bee, such as may be found in the works of Huber, Dzierzon, Berlepsch, and others, I shall note a few points of the greatest practical importance. Queens are reared by the bees when from any cause the parent queen has been removed or is becoming exhausted, and also when preparations are being made for swarming. The production of queens thus rests very much with the will of the bee-keeper. To be fertile—that is, to have the power of laying worker eggs, they must be fecundated by the drone when on their short flight within the first few days, or weeks at most, of their age; thus it follows that queens reared at a season when there are no drones, or which from any cause are incapacitated from flying, are either altogether barren or lay eggs capable of producing drones only. One act of fecundation renders a queen fertile for life, that is for three or four years, with exceptions to be afterwards noticed. The sperm of the drone is lodged in a sac within the body of the queen communicating with the ovarian tube, and serves to fertilise every egg intended to produce a worker as it passes the duct. This supply of sperm being limited, and being neither reproductive nor possible of being renewed, can only fertilise a limited, though enormous, number of eggs. By working on the high-pressure principle it will thus be evident that the laying powers of a queen may be exhausted in half the time allowed when things are left to take a strictly natural course.

As a matter of experience I find that I cannot depend on a queen doing well through a third season. Some are "played out" in one year. I generally weed out all that are over two years old. The following causes tend to impair the value of even a fertile queen.

1st, Being reared from a grub selected by the bees when too old. In the case of natural swarming this is probably never the case, but it frequently happens when a queen dies or is removed by the bee-keeper. The bees have then often no choice. For want of eggs they may be compelled to raise queens from grubs that have been reared for five or six days as workers. The queens produced in such case will in most cases be little better than fertile workers.

2nd, Mating with a drone of kindred blood. All creatures degenerate unless fresh blood be introduced occasionally. Herein is one of the best results of the introduction of foreign races of bees; and here lies the greatest problem yet to be solved by the bee-beeper—viz., how to secure the queen's fertilisation by a selected drone.

3rd, The poverty of the stock to which she may be united will cripple the powers of the best queen. It may have so few bees and so little food that she may be found dropping five or six eggs into a single cell from want of bees to take care of them, or of cells warm enough to lay in singly.

4th, A chill has the effect of paralysing the laying powers of a queen; a severe one destroys her fertility altogether, only drone eggs being afterwards laid. An accidental pinch will often have the same effect.

As it is evident that any improvement in the race of bees, whether as regards size, hardiness, docility, or honey-gathering powers, must lie mainly in the line of queen-rearing, I offer the following hints towards this end.

1st, Queens should only be reared in strong stocks, and in circumstances as nearly as possible resembling the natural process at swarming time.

2nd, Only the first sealed royal cells, and those only of large size, should be allowed to hatch.

3rd, Stocks should be selected for queen-rearing which have distinguished themselves in whatever traits are considered most valuable, and drone-rearing in these stocks should be kept at a minimum.

4th, Alien blood, Ligurian or otherwise, should be provided to furnish the drones necessary.

5th, By so ordering things that no other drones shall be flying when the virgin queens are allowed to take their flight. Experiments in fertilisation in confinement are being tried with some success in various quarters, but no method has yet been discovered that is simple or effective enough to be recommended.

Having by the best use of means within our reach secured our high-class queens we should see that they are supplied with a sufficiency of workers to rear the grubs from all the eggs they may lay, and that, when abundant populations are wanted, there shall be no lack of stimulative feeding. It seems cruel to say that after two seasons such queens should be killed, but we strongly recommend them to be then superseded by their juniors. The superseded queens may be given to stocks of less value, and allowed to wear themselves out through a third season, or until they give evident signs of failing.—William Raitt, *Beecroft, Blairgowrie.*

AMERICAN HONEY.

Being a constant reader of your Journal I noticed in your number of March 13th Mr. Pettigrew's remarks on American honey in his "Gossip about Bees," and also Mr. Major's remarks on page 244. Being a family grocer in the country, and doing a little trade in honey, I was recently offered by a Glasgow wholesale grocer American honey put up nicely in glass jars, which appeared to me to be filled with a syrup with two or three pieces of honey-comb floating in it. Having very grave doubts as to the genuine-

ness of the article I did not purchase, and was not astonished to hear from the traveller when with me on his next journey that a number of the Glasgow retail grocers to whom he had supplied it had been taken to court under the Adulteration Act for selling for honey what was glucose, the result being that he was pushing off this lot of goods in country districts where the Act was not enforced at a reduction of something like 20 per cent. on the first price quoted. The same firm had a lot of tinned run honey put up by Cutting & Co. of San Francisco, a sample of which they had had analysed, when it was pronounced genuine. This I bought a quantity of, which sold and pleased remarkably well.—J. B. COCHRANE.

ARTIFICIAL FOUNDATIONS.

NOTWITHSTANDING the fact that the bee-keepers of Great Britain have had eight or ten cold springs in succession to contend against they are not discouraged, but are looking hopefully forward to the future, expecting that favourable seasons for honey-gathering will come. The fruit and sycamore trees are covered with fruit buds almost ready to burst into blossom. The energies of many apiarians are now ready to burst into activity. All they wait for is fine and favourable weather.

One gentleman who makes and sells artificial foundations informs me that he has already sent off more than 600 lbs. of foundations, and has orders on his books for 600 lbs. more. We earnestly hope that while so many pounds of foundations are being spread abroad and placed in the hands of competent men of every school we shall be this year favoured with a honey season, or one suitable for testing the real value of the foundations, and that during the summer and autumn of 1879 we shall have the results of their use well reported.

The foundations are a novelty in my hands, and I am practically ignorant of the best way of using them. I am cautioned against forming a verdict on their use in brood combs if the experiments are made with the delicate foundations meant for supering. Only the strong yellow ones are recommended for brood combs. I am cautioned, too, against using the fine sheets in supers except in shallow strips of 1½ or 2 inches. These hints from one who has successfully used the foundations may be useful to others as well as myself. It is, however, my intention to test the value of foundations in various ways. Supers of different sizes and shapes will be used, some large enough to admit sheets 12 inches by 5. In some supers the sheets will be introduced without the use of melted wax to fasten and fix them. Having frequently and successfully introduced natural white empty combs in supers I shall try my old plan with the artificial. I like wood supers best—grocers' boxes that can be had for a penny each. Holes 3 inches wide are cut out of their bottoms, some pieces of empty white comb are put in, and their lids fastened down before they are placed on the hives. This year I shall slightly alter the shape of the boxes by making them narrower at their bottoms—that is to say, rather wedge-shaped, and cover them with glass tops instead of wooden lids. In such supers the sheets of foundation will rest on their bevelled sides and be well seen through their glass tops. The glass tops of course can be fixed so as to be moveable—simply held on by a narrow rim of wood tacked on their edges. If the bees seal the combs to the glass, which is more than probable, a cloth dipped in warm water and laid on the glass for a few minutes will unfasten the glass without breaking a cell of the combs.

Those who cannot sell large supers entire might easily introduce light bars in such supers, and thus make them sectional. Having no difficulty in selling both honey and honeycomb in large quantity, our aim is to obtain as much of both as we can at the least possible expense of time and money. Of late years we could sell run honey more readily than honeycomb, now we have customers seeking both. If it be proved beyond doubt that artificial foundations can be profitably used in both supers and hives their use will have to be considered in the construction of hives. The straw hives will have to be made with moveable tops—tops and sides in separate pieces—so that the bee-master will be able to fill or half fill them with sheets of foundation before the lids are fastened on. If the foundations answer well the ingenuity of the bee-keepers will not be taxed to find ways and means of introducing them in all kinds of hives. "By using narrow strips in supers," my able and experienced correspondent says, "you probably may never discover in the finished comb any trace of the foundation except the fixings of melted wax. Anyway, I look for a verdict in favour of its time saving, its perfect control of direction of comb, whether round, square, or oval, and its aid in getting larger yields of honey."—A. PETTIGREW.

OUR LETTER BOX.

ERRATUM.—Page 263, line thirty, right column, instead of "panic" read "pause."

SEBRIGHT'S GOLDEN BANTAM EGGS.—Anyone having these to sell would find customers probably by advertising them.

PRESERVING EGGS (*W. Jeffery*).—We have adopted two modes successfully. Grease the eggs thoroughly, and place them in layers alternately with layers of sand in a cool cellar or dark outhouse; or take a bread pan, mix lime and water enough in quantity and of such consistence as to allow the eggs to be stuck into it and to retain their position. When the bottom is full pour on enough lime to cover the eggs, and then begin another layer. Repeat this till the vessel is full. They do not require to be dry, but they must be protected from the air. The eggs should be newly laid.

LOSS OF QUEEN (*W. W.*).—We fear your conjectures are right. To find this out for certain it will be necessary to turn out the bees and hunt for her majesty. In bar-framed hives you can ascertain this with little trouble by merely taking out each comb and searching among the bees; but if the bees are idle, as you say, it is needless to take the trouble. We should be guided by circumstances in our treatment of the hive. If the hive is strong in bees it would be worth while to join them to some other hive as often described in this Journal—*e.g.*, sprinkle the hives to be joined with sugar syrup, then gently set the strongest upon the weakest (or queenless) hive at night. By morning they will be one harmonious stock.

INCREASE OF STOCKS (——).—You want to have four stocks in bar-frame hives from two in straw hives. We prefer your own plan—to take the swarms from the two stocks, hive them in bar-framers, and at the end of the season drive the bees from the straw hives and unite them to the two weakest stocks. Your friend's plan is to take both combs and bees from the straw hives as soon as first swarm have been sent off, and place them in the new hives. We advise you to take first swarms from both hives, and second swarms too if they issue; but by all means let the combs remain in the old hives till the young queens and all the brood have been hatched—that is to say, twenty-one days from the time of first swarming, then drive all the bees from the straw into the frame hives. Take the honey from the old combs and let the bees fill their hives with new combs, which are incomparably better than transferred old ones. Thus you will have all the frame hives well peopled in early summer with some honey to boot, and perhaps some super honey from your first swarms before the season ends.

ZINC DUMMY IN BEE HIVE (*F. J.*).—We have no doubt that a zinc dummy would do as well as a wooden one. The only difference we know would be that the wooden one would be warmer in winter; but then if the spaces right and left are filled with shavings or sawdust this objection will be removed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
1879. April.	Barometer at 32° and Sea Level.	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 2	29.652	42.8	41.0	S.	42.6	54.3	36.4	99.3	33.6	—
Th. 3	29.580	42.1	41.0	N.	42.2	54.6	33.9	96.4	31.1	0.014
Fri. 4	29.804	44.5	40.6	W.	42.0	55.8	32.0	97.2	29.3	—
Sat. 5	29.836	47.2	45.7	W.S.W.	43.0	55.4	41.4	95.2	36.4	0.098
Sun. 6	29.496	48.0	45.8	S.	43.8	52.1	42.9	66.6	39.7	0.328
Mo. 7	28.947	52.9	50.3	S.	44.0	59.4	44.9	108.0	40.0	0.069
Tu. 8	29.211	49.9	46.4	W.	45.3	60.4	45.4	117.6	41.2	—
Means	29.504	46.8	44.4		43.3	56.0	39.6	97.3	35.9	0.489

REMARKS.

2nd.—Dry day, but very dull and overcast; sunshine occasionally; fine night.

3rd.—Very cold and foggy in early morning; fine and bright after 8 A.M.; overcast and dark from 3 P.M.; rain from 4 to 5 P.M.; lightning and thunder 3.2 P.M.; misty evening; moonlight at 11 P.M.

4th.—Fine bright day; cool wind.

5th.—Dull morning, with drizzling rain in the early part; overcast, and dull day; very little sunshine; wet evening.

6th.—Fair but dull morning; drizzling rain commenced 11.45 A.M., and continued until 5 P.M.; fine starlight evening.

7th.—Dull morning with slight rain, followed by a bright sunshiny day, but rain again in evening.

8th.—Very fine, warm, bright day.

A fine spring week, only two slight frosts.—G. J. SYMONS.

COVENT GARDEN MARKET.—APRIL 9.

OUR market very quiet, with no special remark to make.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	2	0	to	6	0	Melons	each	0	0	to	0	0
Apricots	dozen	0	0		0	0	Nectarines	dozen	0	0		0	0
Chestnuts	bushel	12	0		16	0	Oranges	℔ 100	4	0		12	0
Figs	dozen	0	0		0	0	Peaches	dozen	0	0		0	0
Filberts	℔ lb.	0	9		1	0	Pears, kitchen	dozen	0	0		8	0
Cobs	℔ lb.	0	9		1	0	dessert	dozen	3	0		8	0
Grapes, hothouse	℔ lb.	2	6		8	0	Pine Apples	℔ lb.	2	0		4	0
Lemons	℔ 100	4	0		8	0	Walnuts	bushel	0	0		0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	2	0	to	4	0	Mushrooms	pottle	1	6	to	2	0
Asparagus	bundle	6	0		12	0	Mustard & Cress	punnet	0	2		0	0
Beans, Kidney	℔ 100	1	0		1	6	Onions	bushel	2	6		4	0
Beet, Red	dozen	1	0		2	0	pickling	quart	0	4		0	0
Broccoli	bundle	0	9		1	6	Parsley	doz. bunches	2	6		0	0
Brussels Sprouts	½ sieve	2	0		4	0	Parsnips	dozen	0	0		0	0
Cabbage	dozen	1	0		2	0	Peas	quart	0	0		0	0
Carrots	bunch	0	4		0	8	Potatoes, new	℔ lb.	0	6		1	0
Capsicums	℔ 100	1	6		2	0	Potatoes	bushel	3	6		4	0
Cauliflowers	dozen	3	0		6	0	Kidney	bushel	4	0		5	0
Celery	bundle	1	6		2	0	Radishes	doz. bunches	0	0		0	6
Coleworts	doz. bunches	2	0		4	0	Rhubarb	bundle	0	0		0	6
Cucumbers	each	0	6		1	0	Salsafy	bundle	0	9		1	0
Endive	dozen	1	0		2	0	Scorzonera	bundle	1	0		0	0
Fennel	bunch	0	3		0	0	Seakale	basket	2	6		3	0
Garlic	℔ lb.	0	6		0	0	Shallots	℔ lb	0	3		0	0
Herbs	bunch	0	2		0	0	Spinach	bushel	2	6		4	0
Leeks	bunch	0	2		0	4	Turnips	bunch	0	2		0	4

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 17—23, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age. Days.	Clock after Sun. m. s.	Day of Year.
17	TH	Royal Horticultural Society of Ireland—Spring Exhibition. Linnean Society at 8 P.M.	58.2	35.8	47.0	5 2	6 57	3 26	2 55	27	0 25	108
18	F		56.8	38.0	47.4	5 0	6 58	3 29	4 4	28	0 38	109
19	S	Sale of Specimen Camellias at Stevens' Rooms.	59.0	35.6	47.3	4 58	7 0	3 51	5 13	29	0 52	110
20	SUN	LOW SUNDAY.	60.3	35.1	47.7	4 56	7 2	4 4	6 22	30	1 5	111
21	M	[Auricula Society's Show.	59.5	37.2	48.3	4 54	7 3	4 20	7 31	●	1 18	112
22	TU	Royal Horticultural Society at 11 A.M. National	59.0	37.4	48.2	4 52	7 5	4 38	8 41	1	1 30	113
23	W	Royal Botanic Society—Second Spring Show.	59.2	36.8	48.0	4 50	7 7	5 2	9 49	2	1 42	114

From observations taken near London during forty-three years, the average day temperature of the week is 58.8°; and its night temperature 47.7°.

EMPLOYERS' DIFFICULTIES.

"SOWING Seeds Under Glass" on page 149 of your Journal has afforded me much interest. I would suggest that the same writer add a few hints on the importance of not leaving plants too long in the seed beds or pans. I can manage Asters, Stocks, &c., pretty well, but have no authority over the vegetables, and each year I am annoyed to see Cauliflower, Broccoli, and other plants left so long in the seed bed that they become tall with woody stalks before they are planted out, and of course they never make good heads.

Another mistake from which I suffer in the greenhouse in winter and early spring is the indiscriminate watering of young plants from the rose of the watering pot. Primulas, Calceolarias, and other plants and seedlings have had their young leaves destroyed and in many instances the crowns of the plants rotted away by the quantity of water lying on them—no sun heat, and very little fire heat to cause evaporation. I delight in my garden and greenhouse, and whenever I am allowed to water I either place the pots in a shallow pan of water for some time or else water the surface from the pipe of the watering pot, the water being always 2° or 3° above the temperature of the house. This, of course, is more tedious than the general deluge with the rose, but I am quite willing to take all the trouble on myself.

The gardener is a young man fresh from the hothouses, where he acquired a smattering of Latin and botany (which he is anxious to impart to the coachman!), and has a supreme contempt for vegetable and fruit gardening. However, he is sober and honest, and not without intelligence, but self-conceited, and full of the idea that when six o'clock comes his garden work is over and he may spend the rest of the evening reading newspapers, novels, and poetry. I am sorry he does not seem more anxious to study books connected with his business, but he thinks his education, as far as regards gardening, is "finished."—BUSY.

[The above letter has been sent to me (as the writer of the article referred to in it) by the Editors, with a request for my comment thereon. The letter is an admirable one. The writer has "hit off" in a happy manner two or three of the weak points in gardening practice, and places the peculiarities of a fanciful young gardener in a light that is extremely amusing, yet sufficiently ludicrous to deter others from indulging in the vanity of considering their gardening education "finished" before it has usefully begun. A "smattering of Latin and botany" is not in itself reprehensible, and attempting to impart it to the coachman may even be excused; but when the acquirement and the attempted tutoring are accompanied with a "supreme contempt for kitchen and fruit gardening," and the accomplished individual rushes off "at six o'clock to read novels and poetry," he ought to feel himself fortunate in having such an indulgent employer—one who can bear with his youthful idiosyncrasy in consideration of some otherwise good qualities—of honesty, sobriety, and some intelligence. The young man will if he lives be cured of his youth, and with the addition of a few years will probably be surprised that such barren accomplishments as those he now indulges in should ever have absorbed his attention. If he should see himself reflected in these notes, or others of the same romantic temperament should see themselves, let them be certain that sensible and competent gardeners pity them, and hope for the credit of the craft that they will see the error of their ways before it is too late.

The writer of the letter, as the owner of a garden in which he delights, not unreasonably thinks he ought to be "allowed" to water plants occasionally and to have a little "control" over the vegetables. It is evident that in this case the owner possesses better knowledge of the requirements of plants than the gardener does; and if he—the employer—is willing to take the responsibility of possible failures a gardener were not wise to object to a gentleman indulging in a pursuit that affords him pleasure and at the same time does the servant no harm.

It should always be remembered that the garden is the property of the master, and the pleasure of many an owner is enhanced in proportion to the active share he takes in its management. In such a case the gardener is relieved of much responsibility, and may usually by the exercise of thought and tact spend a comfortable life. On the other hand, when an owner will not hold himself responsible for failures it is only fair and reasonable that he should not take an active share in the gardener's duties. I happen to have had experience of both classes of employers referred to, and I so far endeavoured to adapt myself to circumstances as to have secured the confidence and respect of both. It is pleasant after a long life of practice to be invited to the table of a first employer—once a servant, now a guest; but such a position is never achieved by a man "standing on his dignity" and regarding his employer as little more than an usurper on his own domains. Depend upon it that the man who conceives that gardens were made for gardeners instead of gardeners being trained for gardens takes a wrong view of things, and he will never advance himself nor the craft which he represents.

I will now briefly refer to the points of practice referred to in the above letter. The leaving of plants too thickly and too long crowded in seed pans and beds is one of the most common and most flagrant errors in gardening routine. After the thin sowing of seed, especially in pans, the point next in importance is the work of pricking out the plants or transplanting them before they become drawn—"tall with woody stalks," which can never do credit to the cultivator nor produce crops of the greatest value. The moment the seedling plants, be they flowers or vegetables, show signs of crowding they should be transplanted: and as soon as it is seen that more than sufficient are established the surplus in the seed beds should be cleared off the ground, and those in pots be thrown away. Where plants of the Brassica family cannot on the appearance of crowding be planted in their permanent quarters the requisite numbers should be pricked out 5 or 6 inches apart in nursery beds; and such crops as Lettuces, Radishes, Turnips, Carrots, &c., should be thinned in the seed beds, not after they become crowded, but before; for, besides the plants spoil-

ing each other if left unthinned, they exhaust the soil to a greater extent than is commonly imagined. In order to appreciate this let anyone thin one portion of the seed bed and not the other and notice the difference in growth of the plants. There is really no excuse for large plots of ground devoted to seed beds being occupied with plants for months after they are of no use, but which only exhaust the soil and give a negligent appearance to the garden. Such thickets of vegetation which often linger month after month are worse than useless, and the plants ought to be regarded as weeds—robbers of ground that might be devoted to serviceable and profitable crops.

I will now turn to the watering of plants. The subject is too wide and important to be treated of in an exhaustive manner at present; but I say without any reservation that the man who makes it a practice to drench plants indiscriminately through the rose of a watering pot is no gardener. I care not how much Latin he may have learned, nor how skilled he may be in the science of botany, he is certainly not fit to be entrusted with plants of any great value. There is in many cases, perhaps in the majority, no harm in watering plants through the "rose" of a watering pot; the injury results from the "general deluge." Plants that are newly potted should always be watered through a rose until the soil is firmly settled and the roots are penetrating the fresh material; indeed for long after the potting, a rose may be employed with advantage for the watering of many plants during the summer months. By the use of a small rose flattened or made slightly concave instead of convex, and having perforations rather larger than are necessary for watering seed pans and beds, established plants may be watered as expeditiously and effectively as when no rose is employed, and the work is often done much more cleanly. Nothing is more unsightly than to see soil washed out of the pots and scattered on the stages by rough and clumsy watering, yet this slatternly practice exists in many gardens.

There is only one right way of watering plants, and that is to wait until they require water and then to apply it copiously. As a rule a plant does not need watering when the soil is pasty when it is rubbed with the finger, but if it is crumbly when pressed water may be given. There are other and more delicate tests, but the above is sufficient for ordinary plants and purposes—always premising that when water is applied it is in sufficient quantity to penetrate every particle of soil in the pot; this, again, presupposes that the pots are not filled too full of soil—an error very common with many amateurs, and I am bound to say some gardeners, but not plant cultivators—for when plants are so potted they cannot be properly watered. Plants in a growing state should never be permitted to become so dry as to render it necessary to immerse them in water; although if by neglect they do become excessively dry the practice is a good one, and in the case of starting many plants after their long resting period it is often indispensable.

Pots and pans of seedlings should seldom be watered through a rose. Light sprinklings after the seed has germinated and growth is active cannot be indulged in without the plants being endangered and possibly destroyed. If the water "hangs about" the foliage and collars of the young plants, while at the same time the soil at the bottom of the pots is dry, the plants must inevitably "damp off," and especially under the circumstances described by "BUSY." In watering such seedlings water "2° or 3° above the temperature of the house" should be poured gently round the sides of the pots in sufficient quantity to float under the leaves over the whole surface of the soil, and drain through the entire mass. Then, soil and temperature being right, the plants will flourish.

In raising seedlings a few cardinal points must be attended to—namely, sow thinly, thin quickly, drain efficiently, and water intelligently. "A smattering of Latin and botany" *may* be acquired, but the above practical means *must* be understood and adopted by a gardener if he hopes to be successful, and thus, and thus only, worthy of his vocation, for until he achieves competency as a cultivator his education is certainly *not* "finished."—A NORTHERN GARDENER.]

HEPATICAS.

DURING a short stay last week at the quiet and beautiful little seaport of Whitby I was advised by a friend to visit the nursery grounds of Mr. H. Williamson, being assured I should be well pleased with a grand sight of the modest and lovely Hepaticas. But I really did not expect that such a treat was in store for me. Planted on a wide border 100 yards in length, here are about six thousand of these delightful spring flowers now in full bloom. The arrangement in planting is complete, and the collection comprises the following named varieties:—Cærulea grandiflora plena, Cærulea grandiflora, Angulosa, Simplex, Atrorubens, Rubra simplex, Rosea simplex, Polyloba, and Rubra plena. The readers of our Journal who may admire this welcome spring flower can form their own ideas of the striking effect here produced by one of the best arrangements in planting it has been my good fortune to witness. The above-named varieties are extensively cultivated by Mr. Williamson to supply a large annual demand. In the culture of these plants he is evidently an enthusiast, and the various glass structures and contents, together with the grounds, are in excellent condition.—HORTUS.

SEEDLING CINERARIAS AND THEIR CULTURE.

WHEN some of your readers observe the heading of this article they may think, on account of the comparative easy culture of the Cineraria, that nothing new can be said respecting it. To a certain extent this is true; but when we visit gardens where large numbers of these plants are required, how seldom we see really good plants with healthy green foliage and flowers standing well above the leaves! Often, on the other hand, they are sickly-looking victims of the green fly, and from this it is evident that many are still deficient in the culture of the Cineraria; therefore practical notes may prove valuable, for some cultivators may be looking forward to achieving greater success another season by growing larger plants with finer blooms. The Cineraria takes rank as one of the most showy and most useful of winter and spring-flowering plants, and on account of the rarity and richness of its colours it is indispensable wherever there is a greenhouse to decorate. Although we have not so many varieties to bloom in winter as we have in summer, yet we have as compensation striking and telling colours and long-lasting flowers.

I will now describe our system of sowing, growing, and flowering the Cineraria. In sowing the seeds, which is generally done about the end of April, we use shallow pans, which are well drained, using somewhat rough soil for the bottom, and filling up with fine light soil, making the surface even by lightly pressing it with the bottom of a pot; on this the seed is sown thinly, and lightly covered with very fine soil, which should be somewhat moist. After sowing the seeds a layer of damp moss may be spread over the surface so that water is not required until germination has commenced, which will not be long if the pans are placed in a Cucumber frame or where there is a slight moist bottom heat. When the young plants appear the moss is not required any longer, and the pans are removed to a light intermediate house and placed near to the glass. When the young plants are large enough to handle they are potted off into 60-size pots and again placed in the same house, the plants being never allowed to become root-bound nor to suffer for the want of water. As soon as their roots reach the sides of the pots the plants are shifted into 4-inch pots and again placed in an intermediate house until established, when they are removed to a cold frame and kept somewhat close for a few days. Ventilation is increased until the lights or sashes can be tilted 6 or 8 inches. Attend to the plants well as regards water, and sprinkle or syringe overhead occasionally, as this is a point of great importance, and if neglected they will soon be attacked by green fly, which is their greatest enemy. If this pest is not checked in time it will in many cases injure the plants fatally, therefore the usual remedies must at once be applied—viz., fumigating, or dipping the plants in tobacco water. As soon as the roots reach the sides of the pots the plants are again potted and removed to the frame, where they remain until the end of September, when they receive their final shift. About two dozen of the most robust and promising plants are shifted into 12-inch pots at the beginning of November, and make fine specimens, most of which this season have attained the height of from 2 feet to 2 feet 6 inches, and 2 feet in diameter. The excellent effect produced by these specimens and their value for all kind of decoration render the plants worthy of special attention. In addition to these we grow upwards of a hundred others of various sizes; some we bloom in 4, 6, 8, and 10-inch pots. Some sizes are well adapted for vases and house decoration, others for conservatory, &c. After being removed from the frame they are placed in a cool house, where they are kept close to the glass. I will now describe the compost we

employ for their final and all the previous pottings. One half is of good loam, and the other of equal parts of leaf soil and well-decayed cow manure, with sufficient sharp sand to keep the whole porous.

The Cineraria cannot stand frost, and though it must be liberally supplied with water, yet that must be given judiciously, especially during the winter months. Weak liquid manure may be used with great advantage when they are coming into flower.—J. LLOYD JONES, *The Mount.*

SCARLET RUNNER BEANS.

FOR several years past I have carried on some experiments in cultivating this vegetable, a report of which appeared in the Journal about this time last year. The soil being light I planted them in trenches with manure at the bottom, one row being planted with Beans raised in a box in a vinery, and the other planted with Bean seed at the end of April; on the same day the other row was planted from the box. I saw the other day in your correspondence column that a lady wished to know which would come into bearing first, and you rightly replied those raised under glass; but the difference is not as much as you would expect in a forward season—only two or three days—but there is more risk in planting the seed Beans so early. Last year it was so cold and ungenial in May that the seed fairly rotted in the ground, and the rows had to be planted again, and the transplanted row looked very wretched for a long time, but finally recovered and did very well afterwards. I have continued the experiment long enough now to find out which plan answers best, and shall raise some plants in the vinery as usual for one row, but shall not sow the seeds in the other trench until the ordinary time for doing so here, which is about the 10th of May. For the benefit of the lady and others who may like early Runners I will make one or two observations. It is desirable not to let the Beans get too much drawn up in the vinery; when the stems are grown about an inch, and the two seed leaves fairly developed, the box ought to be at once moved out and placed under a cold frame, or stood outside with a handglass over or a mat, to be taken off on fine days. Also when planted out some protection is necessary in most seasons, or one frost may be very injurious. Acme or angular frames are good, but failing those mats or some other protecting material are required at night. I never had Scarlet Runners so early and productive as since I followed the above plan.—AMATEUR, *Cirencester.*

NOTES ON ROSES—THE SCOTCH CHAMPION POTATO.

I AM sorry I have injured the Baronne's feelings, but all persons do not admire the same kind of beauty, and I cannot stand in wrapt admiration, as George IV. did, of "fair, fat, and forty." Fair, well and good; the old Baronne is good still in point of colour, and has a hardiness of constitution, but as to shape and the contour when fully expanded the less said the better. I am glad "WYLD SAVAGE" agrees with me, and would not condemn a scentless Rose; and though there are undoubtedly many Roses sweeter than others—notably the Teas La France, François Lacharme, Alfred Colomb, &c., yet I find very few persons who are sufficiently acquainted with the scents of various Roses as to group or classify them.

I am sorry this winter has played such havoc, even down in the sunny parts of Somersetshire, with the "SAVAGE'S" favourite Teas. If, however, on the Manetti (not on the seedling Briar or Dog Rose standard), and if he should have mulched his Rose ground before the winter set in, he need not despair, for though they will not do much for a summer's exhibition they may throw up plenty of shoots for autumn blooming. Every one of my Tea Roses are cut down to ground level, and even the older shoots of Gloire de Dijon against a house with a south aspect are injured. Cheshunt Hybrid proves it has not much Tea in its blood, in spite of the grand account of its parentage in the "Rosarian's Year Book;" for though the two-year-old wood is killed, strong young shoots of last autumn are alive for 4 or 5 feet, while every other Noisette or Tea Rose near are killed, and all the older wood of all the Hybrid Perpetuals; and as I always cut away every year in the beds all wood of three years' growth, only keeping last year's young wood and the wood of the year previous, it is not merely from age. In cases of climbers this cannot be done, and all the older wood of these has perished.

If "WYLD SAVAGE" determines to be savage with his Roses and grow Potatoes let me recommend for his soil the Scotch Champion, and bury the manure deep. He will not like the look of the Potato if he is a critic, as it has an ugly deep eye; but it is a wonderful cropper, good keeper, and a capital-flavoured Potato; and, as exceptions prove the rule, it is the only coarse-looking Potato I have yet seen that is worth eating. The crop I had off a small quarter of ground was something extraordinary—only about six bad tubers. We are eating them still, and they are as good now as in November, and yet when I saw the immense quantity of haulm they made in light soil with little manure deep buried I thought the Potatoes would be fit for nothing from my previous experience of gross haulm; but one lives and learns, though I still think it an exception. I have not any seed to sell, so this is not a puff.

Talking of Roses and Potatoes (numbers *versus* names), does it not strike the suggester of numbers that it is rather a bore when persons not initiated when looking round a garden, even though they may be pretty young ladies or their comely mothers, are perpetually saying, "Oh! here is another beauty, number 115 or 100? Oh! dear! What's the name?—Numero Cent. And here's another; only 55." "Oh! bother the numbers" would soon come under a whisper. It is all very well for nurserymen; but if Roses are to be labelled, round white parian labels fastened on to wire not fixed to the bush, but with a longish galvanised wire inserted in the ground, the labels written on with a hard pencil when wet with a very thin coating of white lead and turpentine, will last all weathers for years; and in case of very long names initials will do, although such names perhaps as Souvenir de Marie Detry, or Madame Maurice Kuppenheim, or Madame Durrschmidt may be an occasional difficulty, but M. de Castellane does for Marquise de C., L. V. Houtte for Louis Van Houtte, and so on. By the way, our friend "WYLD SAVAGE" should stick up for high-scented Roses, as in one catalogue I see his namesake labelled "Cherry rose, dull but fragrant." Whether he is fond of tobacco I don't know. I certainly have not found him dull.—C. P. P.

GROWING PEARS.

ALLOW me to thank your Ledbury correspondent for the information which he gives to the readers of the Journal and myself as to the varieties which have succeeded in his neighbourhood. It is exactly this kind of practically useful information that I desire to elicit.

I had no idea in the remarks which I made of asserting that Pears would grow in Worcestershire which would not in Herefordshire. What I did mean to assert was, that at a given height on the hill slopes the eastern aspect was more favourable than the western. I have seen my friend again, who confirms his former statement that he cannot grow the Marie Louise Pear at West Malvern. I must, however, state in explanation that he says the altitude of his garden is greater than I supposed, being about 900 feet, whereas mine is only about 400 feet.

Among the eleven kinds of Pears discarded as either not worth growing or not succeeding your correspondent at Ledbury mentions Winter Nelis. For four successive seasons, including this last, I have bought some beautiful Pears from a cottager grown within sight of my house. He did not know the name, but on sending six to the *Journal of Horticulture* in January they were pronounced to be Winter Nelis. He has good crops on three standards, and I bought nine dozen this season. In former seasons I have had more from him, and as he has many customers I only get a small proportion of his crop.

There are two other Pears which do very well here—one the Chaumontel, the other either Beurré Superfin or Zéphirin Grégoire; I believe it is the former, and in this opinion am backed by Mr. Rivers. Mr. Smith's foreman thought it was Zéphirin Grégoire. It was most excellent last season.—WORCESTERSHIRE VICAR.

HARRISON'S GIANT MUSK.—This is one of the best "everybody's" plants that we know of, from the humble cottager who grows a plant in his window to the princely parterres of the nobleman. As a bedding plant I had an opportunity of seeing it last year at Lambton. Such a success did it appear at the time of my visit that I have no doubt, although I have no authority for saying so, it will be largely used this year. It supplies a great want; as a dwarf yellow-flowering plant it

is without a rival. It is easy to propagate either by cuttings or by division of the roots; anyone having an old plant or two can quickly and easily increase his stock.—PETER FERGUSON.

IXIAS AND RANUNCULUSES.

IXIAS. — In the number of the *Journal of Horticulture* of March 6th, page 173, "H. C. S., *Guernsey*," makes the following remark :—"The principal point is to obtain strong sound bulbs. This is at times difficult, as some of the seed and bulb merchants make it a point to study low prices, and hence they obtain their supplies of Ixias from Belgium and Holland, in which places they are not even brought to the perfection that they ofttimes reach in England."

This was something new to me. I have seen Ixias grown at our nursery for nearly fifty years, both introduced as well as obtained from seed. All the fine newer varieties are grown, and always flower in the most satisfactory manner. I have many times grown bulbs imported from the best Guernsey growers by the side of roots of the same varieties obtained from Scotland, and have not found any difference, so I must come to the conclusion that Ixias are grown here equal to those grown in England. There are only a few houses in Holland which grow Ixias as a speciality, but these do it, as far I can judge, as well as can be done, and I should be surprised if the best growers in Belgium did not succeed equally well. Inferior bulbs may be found in some places as the result of inferior treatment in England as well as on the Continent, but this cannot come into consideration in dealing with a general statement.

I quite agree with "H. C. S." as to the necessity of giving as much air as possible to Ixias. With us Ixias are cultivated with much success in the open ground in a warm situation, with some cover in winter. We have not had very severe winters during the past few years, but often had moderate frosts. The Ixias when not planted in the open ground are planted in pits without artificial heat, and as much air is given as possible. Pot culture is never practised in our nursery for bulb cultivation.

We let Ixias flower and seed freely. In general one ought to be very careful in cutting flowers of many Iridaceous plants. Often the cutting-off of flowers, and especially, too, of the leaves, is injurious to the growth of the bulbs. It is quite different with Hyacinths, from which the flowers are cut to prevent them injuring the leaves by checking their growth.

Ixias ought not to remain in the ground after they have died off. There is chance that they make roots before they are repotted or replanted, and the disturbance of these may be injurious to the plant. The best plan is to take the bulbs out of the ground and to clear them after they are ripe, and to keep them in a dry and airy place in the storeroom till planting time. They ought not to be replanted too early, especially if planted in the open ground. This is only said for Ixias proper, not for Sparaxis or Tritonias, which are here considered to be less hardy than most Ixias.

When we grow Ixias in pots for forcing, which, however, seldom takes place, we never use the same bulbs two or more years for the same purpose, as in general we always select fresh bulbs for forcing purposes.

I am convinced that our Dutch Ixia bulbs are as recommendable as those grown in England, and strong sound bulbs can be had here in sufficient quantity at moderate prices in the beginning of the season.

RANUNCULUSES. — "D., *Deal*," in his "Notes from My Garden" (page 248), in speaking about Dutch Ranunculuses, says that it would seem almost as if the old breed of flowers for which the Dutch growers once were famous had passed away.

I can assure your correspondent that the contrary is the case. There are here in Holland yet a few Ranunculus growers who keep up their collections as complete as possible. The old breed of flowers for which the Dutch were so famous belongs to the Persian class (Ranunculus asiaticus). It may be that of these a few tender varieties have been lost in some places, but many others of high quality have been much increased, and are now to be had at very cheap prices.

From time to time English and Scotch Ranunculuses have been introduced to Holland from the best British growers ; and of many of these varieties now a good stock is found here. Others are not yet sufficiently numerous to be offered for sale.

The new French Ranunculuses of which "D., *Deal*," speaks, will probably be the semi-double large-flowering Ranunculus asiaticus semi-plenus, which in Germany is sold as Ranunculus asiaticus superbissimus, and in England is sometimes offered as Guernsey Turban Ranunculus. These have, however, nothing in common with the Turban Ranunculus (Ranunculus africanus), but are nearer to the Persian class. They form a fine race, especially adapted for brilliant beds, for the varieties are not sold in named collections. Of these Ranunculuses there is a large stock in Holland. The Ranunculuses which, however, are most exported to England, are the Turban. —J. H. KRELAGE, *Haarlem, Holland.*

NOVELTIES IN THE ROYAL GARDENS, KEW.

A VERY charming plant among Primulas is now in flower at Kew, a new introduction too, and one of the prettiest, whether in cultivation or yet to be introduced. It rejoices in the truly descriptive name of P. rosea. The colour is bright and pure, very deep in the young buds, and scarcely less so in many of the flowers, but in others tending to a light shade. The leaves are lanceolate, pale green, and finely serrated or dentate. It appears a plant of moderate size, growing about 5 inches high, the flower stems scarcely exceeding the height of the leaves. The umbels are composed of three to nine flowers ; in many cases five or six open together. The corolla is not quite three-quarters of an inch across, but of good form and breadth of petal, each of these being cut down a little so as to give a beautiful outline. It grows in Kashmir, and is found also in Afghanistan. Plants of this Primula were exhibited by Mr. Ware at South Kensington on March 25th, and certificated.

Another new hardy plant is Tulipa triphylla—not without beauty, but still wanting the gorgeous character usually associated with a Tulip ; not, however, less interesting on this account. It differs conspicuously from others we know in having a spreading and not a cupped perianth. The colour is yellow, and the leaves are narrow and glaucous. It was introduced from Turkestan. Many hardy plants are now becoming attractive with bright blossom. Saxifraga Stracheyi is one of the rarest of the Megasea section now showing its white buds, which by-and-by turn to fleshy pink in the full opened flowers. Milla Leichtlini is extremely scarce, and a nice clump is now in bloom. The flowers are white and open, on a level with the ground. It is not one of the most ornamental, but still is a pretty plant. Speaking of this, though not yet in flower out of doors, we may mention the true name of the Roman Hyacinth. It grows in an adjoining bed, and is correctly named Hyacinthus orientalis var. albulus. There has been some doubt, and consequent discussion, so that an authoritative decision for so well known a plant must be of interest.

Arisæma nepenthoides in the Cape house is the latest introduction of this interesting genus. Many have handsome leaves, and all are more or less curious in the inflorescence, the spathe being often of some size and beautifully marked. In this case the beauty of the plant belongs chiefly to the leaves and two or three large sheathing modifications which precede them, as in Caladium. These sheaths are darkly variegated, and have broken rings of pinkish colour. The petioles are marked with purplish black bars, either joined in groups or separate. The inflorescence is remarkable on account of two auricles formed by the turning over of the spathe above the tubular part, which encloses the seed or pollen-bearing portion of the spadix. The hood rises from between the two auricles, arching over to an acuminate point. In colour it is dull brown, as are also the other parts, but relieved with variation of tint. The entire spathe has been described as three-lobed, and another of like kind we are not aware of in the genus. The middle lobe forms the hood, and the lateral ones we have termed the auricles. It is a valuable acquisition on account of the striking variegation and exceptional form of spathe. It is a native of Sikkim, and was obtained from thence by Mr. Elwes. There is another plant in this house worth particular mention. It is Sarmienta repens, a creeping Gesneriad from Chili, with the brightest scarlet flowers like those of Mitraria coccinea. At one time we only knew it in the possession of the late Mr. Wheeler of Warminster, now it is found in several nurseries, though still not common. The stems are creeping, and bear fleshy ovate leaves of light green. In a wild state it grows on trees, to which it clings by means of numerous roots. It is a lovely plant, flowering profusely, and as it grows well only under certain conditions these conditions must be mentioned. In the usual greenhouse it will not grow, but must have the moisture of an Odontoglossum house or other similar conditions. No doubt in a cool moist

fernery it would succeed equally well. It does best near the glass, and should have a peat soil. In baskets with sphagnum all round it seems quite at home.

Eucharis candida, one of the loveliest bulbs of recent introduction, is flowering in the Begonia house. It has smaller flowers than the E. amazonica, but with a polish not belonging to that species, and the elegantly recurved segments afford it a further distinctive character. Because of its free-blooming habit it will no doubt become a favourite. It was introduced by Mr. W. Bull from New Grenada.

EDGING TILES.

THE remarks in your Journal on edging tiles for garden purposes cannot but be useful, as the taste at present seems to be to entirely ignore our old favourites—Box, Thrift, Gentian, and Grass. Perhaps much may be said in favour of such ideas, living as we do in an age when it is necessary to use every effort to reduce labour as much as possible; and also, as the present style of gardening takes nearly double the number of hands it did fifty years ago, in many cases adequate help cannot be obtained.

Having just completed the laying of 5000 feet of edging tiles it may not be out of place to offer a few remarks on the kind of edging tiles employed here. Besides the above quantity of edging I have had 2000 feet of cement edging laid too, but this only where I have employed the same material for the walks, but as these have already been noted in your Journal comment is needless. The tiles to which I now direct attention were made of fireclay from a design suggested by myself to the maker, Mr. Wylam Walker, Corbridge. From the annexed figure

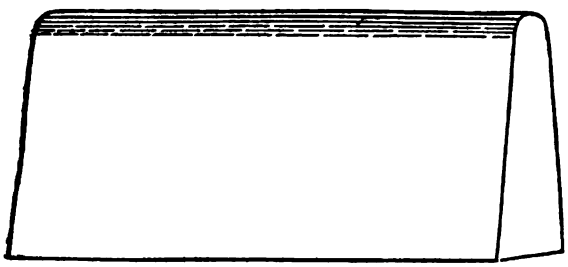


Fig. 41.

you will see the tiles are made in 2-feet lengths 10½ inches deep, 2 inches broad at the top, and 3 inches deep at the base. The breadth at the base renders the tiles very firm, and in addition in the end of each tile is a small hole an inch deep; in this is inserted a small piece of old trellis wire, and when the tile is laid it is driven home into the next tile; the joint being then cemented becomes as firm as a piece of masonry and never moves. In all cases I consider one of the great drawbacks to tile edgings is some of them swerving first to the right and then to the left, and some being out of the level altogether. This is entirely prevented by the above form of tile, and the price of it is just 1*s.* per yard for all kinds of tiles. I prefer plain round, as I think they harmonise well with the rest of the garden.

I fully endorse "C. P. P.'s" remarks that it is absolutely necessary for all tiles to be well burned, otherwise they will not resist such severe frost as we have recently experienced. —B. COWAN.

VINES—SPRING VERSUS AUTUMN HEAT.

"SINGLE-HANDED" on page 267 mixes up my treatment of Vines the first and third year, the difference of which I thought I had made sufficiently clear to be understood. The first year I started and grew the Vines in the first house until autumn without fire heat; in my second house I mean to grow them similarly. This treatment of the second house I stated was for special reasons. Judging by two houses planted at the same time, which were started from the first with fire heat, and noticing that my Vines without fire heat in spring have done so much better, I concluded my slow treatment the first year was best for their future well-being. In these cold climates after the first year, if we wish for fruit, of course we must have fire heat to ripen the wood, or perhaps, what is of still more importance, to perfect the fruit buds.

Regarding my adding heat in the autumn, if "SINGLE-HANDED" ever finds himself at that season with a heavy and valuable crop of fruit and not sufficient heating power, I suppose he also will add thereto. In these cold districts, when Vines are in bearing it is necessary to help them in the spring. I am now tying out my four-year-old Vines whilst my two-year-olds are only just breaking. Certainly, but for the special reason spoken of, I would rather have helped them gently the second year. I may say that I believe it is colder in the county of Durham than it is in any part of Scotland south of Edinburgh, for it is a fact that between Berwick and Edinburgh the harvest is always at least a week earlier than it is in the county of Durham. I am quite in favour, after the first-year Vines are planted, of starting them sufficiently early to have both the fruit and the wood ripe in early autumn. It must be remembered that I have not shrunk from exposing fully all my failures, as I consider this of more importance than trumpeting success; and having Grapes to ripen in October is a failure.—JOSEPH WITHERSPOON.

CARNATION MISS JOLLIFFE.

I AM inclined to regard this as the most useful of the forcing varieties. There are doubtlessly many prettier varieties, but none that I am acquainted with that is so easily grown, and so very free flowering, at a time when flowers of all descriptions are very valuable—viz., from January until June. The flowers are of a pleasing flesh colour, agreeably scented, and are borne generally singly on stalks 4 inches long, which are thrown out freely from the main stems. They are usually of perfect shape, not requiring to be tied to prevent bursting, nor wiring to strengthen the stems. A well-grown plant in an 8-inch pot will on an average produce fifty blooms, extending over a considerable period. These are, as can be imagined, extremely useful for either buttonhole or hand bouquets, vases, &c.

Those who can obtain cuttings should do so at once, inserting them thinly in 5-inch pots, using soil consisting principally of loam with a slight addition of leaf soil, and either silver sand or road grit, and placing the pots under handlights over a gentle hotbed, or wherever the general propagating is done. They will strike readily enough provided the precaution is taken of drying the glass of the frame or handlight every morning to prevent damping from excessive moisture. When struck and after being inured to a somewhat less humid and heated atmosphere, they should be potted off singly into 3-inch pots, using a similar soil, and replacing the plants in heat. When well established if the stock is sufficient they should be pinched back rather hard. If, however, it is desirable to increase the stock, which of course is especially the case where the plants are newly purchased, they should not be pinched back, but be allowed to grow until long enough to admit of cuttings being taken from them. When they break afresh they should be shifted on into 5-inch pots, this time using a little decomposed manure with fibrous loam and road grit in preference to sand, potting firmly, and returning them into heat. When well established transfer the plants to a cool house, and before they become root-bound give the final shift into 8-inch pots. Avoid pinching-back after the first time, five or six shoots, which they usually produce, being quite sufficient, and it is of importance that these be matured early, and also be carefully supported, employing stakes about 18 inches long, one to each shoot, which will be found all the training required, the side flowering shoots needing no support.

During the summer months the plants may be plunged in the open and kept carefully watered both then and during all stages of growth. The temperature of an intermediate house is favourable for forwarding the earliest batch, which will keep up the supply until those in a cool house are flowering. Plants in 5-inch pots that have not been pinched back are the best for early work. Old plants also force well, but we prefer young plants and do not keep the old ones. Weak liquid manure will be found very beneficial if given at intervals during the flowering period.—W. IGGULDEN.

SKIMMIA JAPONICA AND BIRDS.

WE have at this place several large bushes of Skimmia japonica which for many years have been during the six coldest months of the year covered annually with their brilliant scarlet berries. We are very much overstocked with fruit-eating birds, but although they strip the Hollies, Mountain Ash, and Hawthorn, we have never known them to touch these Skimmias even in the severest weather. Anyone having a deep, light,

and friable soil will do well to cultivate these most ornamental and desirable additions to the shrubbery borders. They are not fibrous rooters, but throw out long thick fleshy roots, which delight in a light porous soil with sufficient drainage to prevent stagnation of the ground.—JOHN COX, *Redleaf*.

ILLICIUM RELIGIOSUM HARDY.

THIS little fragrant evergreen shrub was introduced from Japan in 1843. It belongs to the natural order Magnoliaceæ, and, like Magnolia, the flowers produce a most agreeable perfume. It blooms freely, producing large clusters of small greenish yellow flowers in March and April. The plant is of a dwarf and busby habit, seldom growing larger than from 2 to 3 feet high. Illicium religiosum had always been treated as a greenhouse plant here until some two years ago, when I planted it out in a shrubbery. There was little or no frost to hurt anything the first year after it was planted, and it did not suffer in any way. It has stood the last severe winter unhurt, and is now one mass of bloom, and to all appearance is quite healthy.

While hardy Fuchsias, Pittosporum Tobira, and Eucalyptus globulus have been killed to the ground if not altogether, and Laurustinus and other shrubs have been cut up considerably, I may mention that Rhynchospermum jasminoides, which is generally treated as a greenhouse and sometimes as a stove plant, has been planted out here and grown against the end of my house for the last four years without any kind of protection, and it has not suffered from the effects of frost in the least, while a Ceanothus denticulata, growing not more than 6 feet from it, has been almost killed.—A. PETTIGREW, *Castle Gardens, Cardiff*.

THE BIRDS.

I NEVER read anything more illogical than Mr. Radclyffe's letter on this subject. He says he twice counted thirty-seven blackbirds and thrushes on an acre of grass. Surely if the grass had not been very full of insect life there would not have been a tithe of them; but then they were doing good, as they always do all the year excepting when the fruit is ripe. In the winter especially the thrushes rake out the slugs and snails that have hidden away, and so do an immense amount of service; so, forsooth, Mr. Radclyffe had five dozen shot, just to put an end to that, and this for months to come! Think for one moment what a number of insects thirty-seven blackbirds and thrushes would clear off a grass field in one week, let alone the months that would elapse before the fruit season. I consider the act indefensible. The birds were doing a positive benefit, and, as I have said before, the very number only proves how much, as they would not have been there had there not been food.

All through the winter I have been feeding the birds here, blackbirds and thrushes (in fact I feel I cannot have too many of the latter), tits, nuthatch, chaffinches, robins, hedge sparrows, &c. But there is one bird that I never feed, one bird directly I or any of my people hear its note the gun is sought for, and if possible, it is killed; I mean the bullfinch. I never spare that bird. This last season there have been nearly fifty shot here, and still there is a pair that is "wanted." Oh! how sweetly and merrily the mavis sings in the early morning, and the ousel warbles his soft piping notes close to my window, and then after awhile I see them descend to their food. No buds, no flowers, but slugs, worms, &c., and I am thankful that I have so many about my garden. I have been round to-day, all my Plum buds are sound or nearly so; my Gooseberry bushes are in bloom, and plenty of it, excepting the late varieties. My Currant bushes are untouched as far as I can see, and there are the tits gambolling about the twigs here, there, and everywhere. I watch them with great satisfaction as I see them clearing the boughs of the eggs of insects and dormant grubs. Thanks to the birds I have a very good show of bloom: and thanks to them, especially the starlings, my grass looks well. No bullfinches for me, not one. I lost the whole of my Plum crop one year through them, besides the bloom of my double Thorns and other flowering trees. They love bloom buds because they are sweeter than the leaf. I am nearly surrounded by woods, and from these they come, so we have to be perpetually on the alert for them. I do not like many sparrows, the fewer the better; all other birds I tolerate. I net my Strawberries and some other fruits, and the only bird that touches my Pears and Apples is the blackbird; these I scare away as much as possible when the fruit is getting ripe. I never knew the thrush peck the Apples and Pears, though I have watched often and closely.

After many years of observation I have come to the conclusion that I am very much better off with the whole family of birds than without them, excepting bullfinches and house sparrows.—HARRISON WEIR, *Weirleigh*.

NEWCASTLE SPRING FLOWER SHOW.

THE third spring Show of the Newcastle Botanical and Horticultural Society was held in the Town Hall and Corn Exchange on the 9th and 10th inst. The extremely severe and prolonged winter in the north did not inspire the promoters of the Show with such success as we have the pleasure of recording. The entries were much larger than was anticipated, upwards of two thousand plants being staged; and after the first and second prizes were awarded it became an arduous duty of the Judges to award the third in several of the classes. The substantial manner in which the Newcastle Show is now worked, and the spirited prize lists the Committee issue, command the support of the horticultural exhibiting public; and the promoters certainly deserve all the success they have achieved. The Committee were unceasing in their attentions to the public and exhibitors. The acting Secretary (Mr. Gillespie) and Mr. Taylor were nearly always present; the latter gentleman, having been lately Honorary Secretary, the Society still has the benefit of his experience and counsel.

The first day of the Show being exceedingly wet and cold the number of visitors was not so great as usual, though the second day was finer, and the Show and concert in combination was on that day a great success. Both in extent and quality the Show (omitting such collections as those staged by Messrs. Veitch and a few other professional exhibitors) was equal if not superior to London shows, and it is also no small credit to the "coaly metropolis" of the north to add that most of the special prizes were won by exhibitors within a short radius of Newcastle; and the Exhibition, in the number of entries and merit of the exhibits, was the best the Society has ever held.

It is impossible to particularise all the objects of merit; only the leading collections can be referred to. The A division, or open class—£5, for four plants dissimilar—brought out ten competitors, and some excellent specimens of greenhouse, Orchids, and stove plants were staged. The first prize was won by Mr. Noble, gardener to Theodore Fry, Esq., Woodburn, Darlington, with a very good Clerodendron Balfourianum, Genetyllis fuchsioides, Imantophyllum miniatum superbum, and Tremandra ericæfolia. Mr. Wright, gardener, Southfield, Burley, Leeds, was second; Mr. Brown, gardener to E. Joicey, Esq., third; and Mr. Tudgey and Mr. Yule equal fourths. Mr. Wright staged a magnificent plant of Imantophyllum with seven heads of flowers, each nearly 1 foot across; this and Phalænopsis Schilleriana, exhibited by Mr. Yule, were two of the most striking plants in the Show. Next came the Azaleas, which were both better and much more numerous than last year. The first prize went to Mr. Henry Wright for pyramidal-shaped plants of superba, purpurea, magna, and grandis. Some of these plants were not quite fresh, and were one-sided, and much surprise was expressed when they received premier honours from the Judge. Mr. Methven, gardener to J. Lange, Esq., Heathfield House, Gateshead, was second with good examples of Iveryana, triumphans, and magna alba, all profusely flowered. Mr. Brown, gardener to Edward Joicey, Esq., Whinney House, Gateshead, was third, his best plants being Comte de Hauricault and Exquisite. The fourth-prize collection, exhibited by Mr. Yule, contained excellent plants of Flag of Truce, Iveryana, Perfection, and Marquis of Lorne. The plants were profusely flowered, and surprise was very great that they did not secure a higher position. Mr. Yule is a young exhibitor of great promise, and will "make his mark" in the future. Rhododendrons were very fair, Messrs. Yule, Brown, and Methven securing the honours. The first-prize collection consisted of Countess of Haddington, Ochroleuca, and Barclayana. A few very good hardy shrubs were staged, Mr. Bass, gardener to M. Anderson, Esq., being first; and Mr. Tudgey, gardener to F. G. Williams, Esq., Henwick Grange, Leicester, exhibited a few very good Heaths.

In the class for six plants of Dielytra spectabilis four collections were staged, Mr. Batson, nurseryman, Seaham, Newcastle, being first with fine plants fully 2 feet across in 8-inch pots. Mr. Thompson of Ravenside Nurseries was first with very fresh fine plants of Deutzias. Mr. Armstrong and Mr. Methven second and third. Cinerarias were also very good, Mr. Forsyth, gardener to H. Snowball, Esq., Heathfield House, Gosforth, staging plants nearly 2 feet across. The prizewinners for six plants were Messrs. Hutchinson, Methven, and Kershaw. Spiræas were represented by ten collections of six plants each. Mr. Watson, nurseryman, was first with splendid examples of culture in 8-inch pots, the plants measuring upwards of 2 feet 6 inches across. Mr. Anderson and Mr. Wm. Alexander were awarded the second and third prizes. Cyclamens were fairly good, four collections being

staged, Mr. Thompson securing the first prize. Primulas were not nearly so fine as last year. Pot Roses were not numerous, but those exhibited by Mr. Hutchinson, gardener to J. G. Hunter, Esq., Wickham, were very good.

Auriculas were good considering that the date of the Show was three weeks too early for these plants. They were consequently drawn by having been forced to get them into bloom. For six Auriculas Mr. Adam, Swalwell, was first with good examples of Traill's Beauty and Conqueror of Europe. Mr. J. Hay, Killingworth, was second, G. Lightbody being very good. For six Auriculas, Selfs or Alpines, Mr. Hay was first with Mercury and Blackbird, very good. Mr. Adams and Mr. Flowdy second and third. For one Auricula, self and Alpine excluded, and also one Auricula self. Mr. Adams was again first with Col. Champneys and Charles J. Perry respectively. Mr. Hay was first for a single Alpine Auricula with Beatrice (Turner).

Table plants as usual formed an interesting feature in the Exhibition, and ten collections of six plants each were shown. Mr. Thompson, gardener to Lindsay Wood, Esq., South Hill, Durham, and Messrs. Noble, Charlton, and Methven, being the respective winners. The first-prize collection contained plants about 1 foot high of Pandanus Veitchii (fine), Croton Queen Victoria, Dracænas Guilfoylei, Cooperi, australis, and Areca aurea. In the second were good examples of Cocos Weddelliana, Dracæna Guilfoylei, and Reidia glaucescens.

The next and perhaps most interesting feature of the Show were the Hyacinths and bulbs in general, which were much superior to those of last year; 864 pots of Hyacinths, Tulips, &c., were staged, and produced a fine effect. The £5 prize for twenty-four Hyacinths in pots was easily won by Mr. Thompson. The best flowers were Grandeur à Merveille, Blondin, Sultan's Favourite, King of the Blues, Macaulay, Florence Nightingale, Koh-i-noor, Chas. Dickens, and Grand Lilas. Messrs. Dewar & Co., Nurserymen, Grey Street, Newcastle, were second with very fresh and even plants, but generally smaller than the above. Messrs. Stephen Nairn and Sons, nurserymen, Pilgrim Street, were third with good examples of culture. In the class for twelve plants there were eight competitors; Mr. Thompson being again first with fine plants, Messrs. Dewar & Co. and Lasenby being second and third respectively. In the class for nine pots of Tulips there were five competitors. Mr. Hartley, Headingly Nursery, Leeds, secured the first prize with fine examples of Proserpine, Keysers-Kroon, and Joost Van Vondel. Mr. Watson and Mr. Thompson being next in order of merit.

We now come to the cut flowers and table decorations. In the class for twelve cut blooms of Camellias there were ten competitors, Messrs. Wright, Hartley, and Gellender securing the prizes. Azaleas and Rhododendrons were also good, and amongst cut Roses Messrs. Finney staged six extraordinarily large blooms of Maréchal Niel. There were fifteen entries for the drawing-room epergnes, most of which contained choice flowers arranged with much taste. Mr. Thompson, South Hill, was placed first with a Marsh glass, the top of which was filled with Phajus grandifolius, Anthurium Schertzerianum, Spiræa, Oncidium sphacelatum, and the base principally consisted of Calla æthiopica, Eucharis amazonica, Imantophyllum, and a few other bright-coloured flowers, and was rich and elegant, but the principal charm of the arrangement consists in the judicious use of Lygodium scandens, which had a most pleasing and graceful effect. Mr. Eymer, The Barnes, Sunderland, was second with a very pretty epergne. Hand bouquets were good, a dozen of them being shown. Mrs. Cramont secured first honours with a very tasteful arrangement. Button-holes were also largely shown; Mr. Yule was first with a charming arrangement of Selaginella, Spiræa, and Dendrobium Devonianum. In the ladies' class some very attractive hand bouquets, Hyacinth glasses, and tastefully arranged epergnes were exhibited.

The second division of the Show ("open to all, nurserymen excepted") was very meritorious. In the class for two Azaleas there were several competitors. Mr. Tudgey was first with Duc de Nassau and Gloire de Belgique; Mr. Charlton and Mr. Kershaw following next. Some splendid pots of Mignonette were shown, the first prize falling to small plants of Miles's Hybrid Spiral of about 16 inches high, certainly very fine, shown by Mr. Wood; while Mr. J. Oliphant staged splendid plants, fresh, one trained as a pyramid, the other of natural form, and 2 feet across, yet the Judges only placed them second. This elicited nothing but surprise from all sides. The Cinerarias and Cyclamens in this section of the Show exhibited by Mr. Hutchinson were very good, and in both classes he secured primary honours. The Lily of the Valley exhibited by Mr. Yule was also very creditable to him. Some very fine Polyanthuses and Auriculas were also well shown, nor must we omit mention of some grand German Wallflowers exhibited by Mr. Forsyth. The prizes in this section for twelve Hyacinths were won by Messrs. Anderson, Brown, and Yule; and for six plants by Messrs. Wood, Taylor, and Wass respectively. In six pots of Tulips, three bulbs in each pot, Mr. Anderson was first, Mr. Atkinson second, and Mr. Hedley third, all staging good examples of culture.

The amateur section was not largely represented, but Callas, Acacias, Azaleas, Deutzias, &c., were exhibited in good condition. The Society prefer giving more substantial prizes to this class of exhibitors at their summer and autumn shows. The Committee and officers of the Show have worked hard for the success that they have so well won, and they have the satisfaction of knowing that their efforts are widely and warmly appreciated.

MARÉCHAL NIEL A NOISETTE.

On page 278 it is stated that an essential character of Noisette Roses is that the flowers are produced in clusters, but in Maréchal Niel they are produced singly. I once had a real Maréchal Niel under glass. It eventually bloomed itself to death. As soon as that Rose attained its full strength the Roses all began to come in clusters, and magnificent clusters they were. It was happily too early in the season to necessitate the horrors of disbudding. It showed itself while at its best to be a thorough Noisette. When it began going off it went back to single flowers. I doubt not others have noticed the same. I submit, therefore, that the cluster test tends rather to prove a Noisette character in it, though I quite admit that it requires a favourable climate to show itself in its true character, and that the editorial description is the more generally correct.—A. C.

FUMIGATING.

We have used Appleby's compound tobacco in his patent fumigators for several years, and have always found it both effectual and economical. If your correspondent "S. A. Y." (page 247) had used those fumigators he could have left them with safety in the house, and need not have run the risk attendant upon disregarding the instructions printed on every packet. An open riddle, unless it was covered with a piece of perforated iron, does not appear to me as a safe instrument to use for the purpose.—John Cox, *Redleaf.*

In reply to the inquiry of "S. A. Y.," page 247, we beg to inform him that the best apparatus for fumigating a greenhouse from the outside is F. J. Drechsler's patent, which we have supplied to the Royal Gardens, Windsor, and other establishments, in all of which it has given unqualified satisfaction. It is different from every other invention for the same purpose, while unlike many it is too substantially made to get out of order; and its capacity may be judged from the fact that one of our customers writes us, he succeeded with an 11-inch diameter machine in completely smoking two ranges of houses, measuring together 315 feet in length, in the space of twenty minutes. — Dick Radclyffe & Co., *128 and 129, High Holborn, W.C.*

In reply to the inquiry on page 247 I beg to inform your correspondent that Mr. Charles Harber, who is in the service of the well-known firm of Richard Smith & Co., Worcester, has invented a fumigator which should be made known. I have one in use, and find it both safe and economical. The inventor has charge of many houses 200 feet long by 22 feet wide; these are fumigated efficiently from the outside. In form the fumigator resembles a conical tea-kettle, with a long nozzle for insertion into the pit or house. It works well from the outside on account of the draught, is easily started, and every particle of the material is rapidly converted into a dense volume of cool smoke, which fills a large house in a very short time. There is no danger to delicate foliage. Many nurserymen and gardeners whose opinions are of value greatly appreciate it on the score of economy of time and material, and, last but not least, comfort to those who have to use it.—G. Helman, *The Gardens, Crown East Court, Worcester.*

YOUNG GARDENERS—GLASS FOR VINERIES.

As a young gardener I have been pleased at seeing the good advice given to us in the pages of the Journal. I know the value of the advice given for young men to have, if possible, the friendship of a neighbouring gardener. I have held my present situation for nearly twelve months, and a neighbouring gardener who is older in years and experience has given me many timely hints and has helped me on greatly. The next thing I wish to testify to is the keeping account of all work that is done. I have done this ever since the second year of my apprenticeship, and I can look over my books and see when seeds were sown, when plants were potted, and find other information which is of great value to me now. I receive

great help from "Work for the Week" in the Journal, which I always read first, and I think the advice there given is very useful for young gardeners generally.

I have another thing to write about, that is glass for a vinery. A large vinery here is glazed with thick plate glass and planted chiefly with Black Hamburgh. Last season the Vines were started just after Christmas. Grapes were ripe in June, and with all the ventilation possible the wood was not well ripened when pruned in November. They were started in December, breaking very slowly, and they are now in flower, a few of the earliest bunches requiring thinning. I think that the thick glass is the cause of this backwardness. At the end of the house, where the wood was not so well ripened, the bunches are not numerous. In another vinery, glazed with clear glass and not started till the end of March, and then with very little fire heat, the Vines ripened their wood nearly as soon as the other. This is the first time that I have had to deal with Vines under thick plate glass, and I shall be glad if it be the last.—G. HILTON, *Great Totham, Essex.*

NOTES AND GLEANINGS.

WE remind our readers that the NATIONAL AURICULA SOCIETY'S SHOW (southern section) will be held in the Royal Horticultural Society's Gardens, South Kensington, on Tuesday next. Assuming that the display will be equal to those of the past two years, we do not hesitate saying that the Exhibition will be worthy of extensive patronage, not by Auricula lovers only, but by admirers of flowers generally, for a collection of Auriculas is unquestionably beautiful.

—— MR. REDFERN, the Secretary of the Birmingham Chrysanthemum Society, acknowledges the receipt of £10 from Mr. Bardney of Liverpool towards the fund now being raised for the NATIONAL SHOW OF CHRYSANTHEMUMS to be held in Birmingham in November next, and reminds exhibitors in London and elsewhere that they should now respond to the Liverpool challenge and contribute their share, so that it may really be a national contest for superiority in the cultivation of this superb winter flower.

—— WE are requested to state that, in consequence of the great Show of the Royal Agricultural Society being fixed for the first week in July, the Committee of the AYLESBURY HORTICULTURAL SOCIETY have decided to alter the date of their summer Show from July 3rd to June 26th.

—— IN our report of the Royal Horticultural Society's meeting last week we omitted to record that Messrs. Veitch exhibited a remarkably beautiful NEW DENDROBIUM, D. Brymerianum, for which a first-class certificate was awarded. The flowers are finely formed, of a rich golden yellow, the labellum being very deeply fimbriated or laciniated.

—— REFERRING to the excellent article on the CULTURE OF MIGNONETTE on page 265 a correspondent writes that Mr. Bardney practises all that he preaches, for he never saw a finer example of Mignonette in pots than he recently inspected in the garden under the charge of that cultivator. The variety now flowering so finely is the old one commonly grown in gardens, and which Mr. Bardney recommends as the best for sowing in the autumn for producing a spring supply of this ever-welcome flower.

—— "THE ALMOND TREE, usually a pioneer of spring, has not," writes a correspondent, "yet flowered about Gravesend, and it is thought the trees have been so thoroughly checked that there will be no bloom on them this season."

—— A CORRESPONDENT, "H. C. Y., *Glasgow*," writes as follows:—"In reply to the query of 'A. M. B.' on page 251 relative to SPIDERS, I do not think spiders are generally to be found in pairs. The sexes may occasionally be found together, but only for a short time. If 'A. M. B.' searches for the spiders in order to destroy them, as I presume he does from classing them along with snails and earwigs, he could not commit a greater mistake. Spiders feed on flies and other insects, many of which are very injurious to plants, and I have often seen them sucking the juices of the aphides; while on the other hand I am not aware of any injury done by them, and they should therefore be protected. The large handsome spider mentioned by 'A. M. B.' is probably Epeira diademata, *Clerck*; and may it not partly be owing to its numbers on the Apple tree on which it was in greatest abundance that this tree is specially mentioned as being healthy?"

POISONOUS YEW TREES.—"H. D." asks why some Yew trees are virulently poisonous and some harmless. Does the sex of the tree make any difference? In a notice of the Goodwood Home Farm this is mentioned as a fact, and it is stated that the poisonous Yews in West Bottom and Molecomb Bottom have been fenced in, and that the adjoining trees, although not fenced, have not been found injurious.

—— As will be seen in our advertising columns the excellent new CAMELLIAS raised by Mr. Hovey of Boston, U.S.A., are to be sold to-day (Thursday) at Mr. Stevens's rooms. It will be remembered that first-class certificates were awarded for these seedlings by the Royal Horticultural Society on March 25th.

—— SEVERE FROSTS, says the *Daily News*, have recently made sad havoc in the market gardens around Paris. There is likely to be a bad account of Plums, Apricots, and Peaches. A grim caricature in the "Charivari" represents Winter taking leave of Spring, and saying—"There was no need to send me away, for you are doing just as I did." It appears much the same in England. From Newcastle we hear that showers of hail fell all last week, and that the ground was covered 4 inches deep with snow. From Durham a letter informs us that the mercury of the thermometer sank to 22° at Easter, and on Saturday last snow fell heavily for three hours in the neighbourhood of London.

—— THE Dutch official trade returns show that the export of FLOWER BULBS during the sixteen years from 1861 to the end of 1876 amounted in value to 19,640,000 Dutch florins (about £1,636,000), or an annual average of over £100,000. It appears that the value has been annually rising; thus the export for 1876 is set down at 1,666,000 florins (nearly £139,000). According to the latest survey the land devoted to rearing bulbs of Tulips, Hyacinths, and similar flowers amounts to 240 hectares, or nearly 600 acres. Of these about 10 acres are in the neighbourhood of Egmont, about 90 around Velsen, while the remaining 500 acres are in the neighbourhood of Haarlem, Schoten, Bloemendaal, and Heemstede. But besides these special localities, where the cultivation of the bulbs is carried out on a large scale, there are innumerable small patches scattered all over the country, where Tulip and Hyacinth bulbs are reared with great care and success.

—— A CORRESPONDENT writing to us on BIRDS AND FRUIT observes—"I was considerably annoyed, when my yellow Crocuses began to appear this spring, to find that the sparrows had determined to rob me of every flower as it made its appearance. The intervals between the rows were every morning scattered with fragments of mutilated buds and flowers. To prevent if possible further damage, I stretched across the beds a piece of light thread attached to little sticks about 6 inches above the surface, and on the middle I tied a piece of paper, and from that time not a Crocus was touched, until thinking that danger was over I removed the contrivance, when the mischief was recommenced as vigorously as ever. On replacing the threads the birds again kept at a respectful distance. A friend has subsequently informed me that last year his Gooseberry and Currant bushes were in like manner attacked until he twisted threads in and out among the branches, when the birds seemed afraid to come near them. This spring he has observed that the birds have avoided the bushes on which the remains of last year's thread still hang, whilst they have completely stripped the buds off freshly planted bushes which had not been so protected. The remedy is a simple one, and may be worth the consideration of your correspondents who complain so bitterly of their losses."

—— NOW that the weather has become somewhat spring-like, it is found that many young Conifers, &c., have been damaged in the Scotch nurseries. In low-lying damp localities many shrubs have been cut down by the frost. Cabbage and Cauliflower plants are extremely scarce, 9*s.* per thousand being obtained in market for the former, whilst for a hundred plants is charged 1*s.* 6*d.*

—— WE are glad to learn from the balance sheet of the UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY that the finances are in a satisfactory state, and that there is a substantial increase of capital for investment. The economical manner in which the Society is managed and the safe investment of the funds, together with the advantages it offers to members, recommend it as worthy of support of those engaged in gardening pursuits. The Society not only affords benefit in sickness, but further combines the principle of a savings' bank with that of life insurance. The Committee room of the Society is at the Caledonian Hotel, George Street,

Adelphi, London. Mr. Baker, The Gardens, Coombe Cottage, Kingston Hill, Surrey, is the Treasurer of the Society, and Mr. McElroy, The Gardens, Moray Lodge, Campden Hill, Kensington, W., the Secretary. The Society consists of upwards of seventy benefit members and a small number of honorary members.

—— We have received a portrait of the new double-flowered Indian Azalea Empress of India (A. Van Geert). At the International Show held at Ghent in April, 1878, where this fine Azalea was exhibited for the first time, it obtained the first prize under the provisional name of "Héros des Flandres." Since then, at the meeting of the Floral Committee of the Royal Horticultural Society held on the 11th of March last, it obtained a first-class certificate. A new white double-flowered Indian Azalea, Louisa Pynaert, originates from one of the most successful Ghent growers, the late Mr. L. Brugge, who has raised a good many of the best varieties now in commerce.

SWANSEA FLOWER SHOW.

The second annual Swansea Spring Flower Show was held on Thursday, April 3rd, and though it cannot yet be said to have passed the experimental stage, yet the measure of success attending it, and the floral resources of the district, afford promise of its speedy establishment on a firm basis. The prizes offered were not large, but the exhibits were of choice quality, and the effect of the whole when arranged in the Music Hall was charming. Mr. Sterling, gardener to H. H. Vivian, Esq., M.P., Park Wein, secured prizes for the best collection of Azaleas—Triumphans, Reine des Doubles, Flag of Truce, and Iveryana; for a collection of stove and greenhouse plants—Dracæna ferrea, Dracæna australis, Sabal umbraculifera, Latania borbonica, Seaforthia elegans, &c.; also for cut Roses Gloire de Dijon and Maréchal Niel. Mr. Warmington, gardener to J. D. Llewelyn, Esq., Penllergare, secured the first prize for cut Camellias and second for Deutzias, Azaleas, and Orchids, Dendrobium nobile being a very fine specimen.

Mr. R. Stafford, gardener to J. T. D. Llewelyn, Esq., Ynisygerwn, exhibited a splendid collection of Auriculas, including the following: Netherwood's Othello, Seedling, Grey Friar, Turner's C. J. Perry, Smith's Ann Smith, Traill's Anna, Summerscale's Catharina. Among the Alpines were Nat Norman, Diana, Nimrod, Dolly Varden, Trojan, all Mr. Turner's flowers, and one seedling. The six best selfs were all seedlings. In the show of gold-laced Polyanthuses were Exile, William IV., Cheshire Favourite, and Formosa. The same exhibitor also staged Primulas, double and single Primroses, and perpetual-flowering Carnations. J. T. D. Llewelyn, Esq., has this year again kindly issued a public invitation to lovers of flowers to pay a visit to Ynisygerwn in the Vale of Neath, while his favourite Auriculas are in bloom, a privilege which is highly prized in the district.

Mr. Alfred Patrick, gardener to Major Phillips of Crumlin Hall, Monmouth, received the first prize for Orchids with a remarkable specimen of Dendrobium Wardianum; he also showed fine examples of Lycaste Skinneri, Calanthe Veitchii, and others, and splendid cut blooms of Roses Isabella Sprunt, President, and Maréchal Neil, with some fine Zonal Pelargoniums. The same exhibitor also won the first for Cucumbers. Mr. John Gardner, gardener to Richard Hughes, Esq., Ynistawe, was first for six stove or greenhouse plants, Zonal Pelargoniums, Ferns, and second for Auriculas. Mr. John Lodge, gardener to T. Cory, Esq., Sketty, secured prizes for stove and greenhouse plants. He staged a splendid specimen of Chorozema cordifolia; he was also placed first for Cinerarias and Lilies of the Valley. For table decorations Mr. Patrick, Crumlin Hall, was first, followed by Mr. Crane of Park Wein and Mrs. Primaven.

COTTAGERS' HORTICULTURAL SOCIETY.

With their usual kindness your correspondents have come forward to assist "Yorkshire Curate" in the matter of forming a cottagers' society. With the advice offered by Messrs. Moorman and Muir it would be difficult to find fault, yet ten years' practical acquaintance with our local show at Lumley Castle, together with my friend Mr. Witherspoon's views of "leaving anything to the whim and caprice" of the judge, warrants me in exhorting "Yorkshire Curate" to be precise and exact in the wording of his schedule. Such indefinite terms as "dish," "bunch," "collection," &c., should never be allowed in any prize list without special qualification. At the Show just referred to disputes have occurred concerning the decisions of the judges in the cottagers' fruit class, arising from the fact that some competitors measure their fruit, and stage exactly the quantity named in the schedule, which is generally, I think, a pint; while others fill their plates full, staging probably a quart, and are frequently awarded the prize, always supposing that the quality of the two dishes are equal or nearly so. The man who staged the "regulation" quantity could in all probability have furnished more, but although following the instructions in the society's schedule, he loses the prize, and a dispute consequently ensues. Last year this matter was put before the judges, and was strictly observed, much to the chagrin of "heaped plate" men.

Again, there is or ought to be a great difference in the judging of cottagers' produce as compared with that of gentlemen's gardeners. Not that gardeners do not try to get as much as possible from the land under their charge, but from the fact that the produce which suits the cottager with his large family would be inadmissible to the tables of noblemen and gentlemen. The cottager strives to grow his vegetables as large as possible, and so long as they possess quality they must be judged accordingly.

With offering prizes for the best kept and best cropped allotment or cottage garden I entirely agree, for I have found some of the most noted "show" men in our district the most untidy of cottage gardeners, the consequence of devoting all their time and attention to some pet object.

Providing prizes for children is another laudable object, especially now that botany is so generally studied. Collections of wild fruit are also suitable, for which prizes can be offered; arrangement on tray, basket, or otherwise with the common and botanical names attached being made special considerations. Pursuits of this kind help greatly to mitigate the great evils which arise from misspent hours. Those who saw the collection of wild fruits at Lumley Castle Show last year, kindly contributed by the under gardeners at Lambton, will not readily forget it.

"Yorkshire Curate" cannot do better than accept the proferred schedules and revise them so that they will meet the exigencies of his case, care being taken to eliminate all passages or words that are capable of being misconstrued; also to see that nothing is left to the "whim and caprice" of the judge.—Peter Ferguson.

REVIEW.

The Native Flowers and Ferns of the United States. By Thomas Meehan. Illustrated by Chromo-lithographs. 4to. Boston: L. Prang & Co.

This is a work which will be a very valuable one to British gardeners at the present time, when so much interest is being taken in the cultivation of hardy plants. Some of our most beautiful border flowers and flowering shrubs are natives of the United States of America, and in the work before us we have them represented most faithfully in the admirably executed chromo-lithographs, and well described by Mr. Thomas Meehan. Two volumes are now completed, and contain ninety-six portraits of the flowers, natural size. The work is issued in parts to subscribers only, and each part consists of four coloured plates and sixteen pages of text. It is a valuable as well as a beautiful book, and we cordially recommend it.

MOWING.

No one can deny how important it is for every gardener old and young to be able to mow well. I admit that almost every gardener during his apprenticeship is taught the art of mowing more or less. I well remember my first lesson in mowing, and how proud I was with my first scythe; nor shall I ever forget my first morning when using it. I thought I had selected the worst scythe in the shop. I could not make it cut, but one of the old mowers cheered me up by sharpening it, and my master showed me how to use it. Perhaps every young gardener has not teachers who take so much trouble with them as my friends did with me. But if a young gardener takes an interest in his work and is willing to be taught, a good master will be pleased to instruct and help him all he can.

I know many young gardeners think if they have a little knowledge of mowing that will be all they are likely to require now mowing machines are so much in fashion; but there are many times when mowing machines cannot be used, and then the scythes have to be brought out, and sometimes young gardeners have to be called out too; and now the trial begins, not only to the mowers, but oftener a trial for the head gardener when he sees what has hitherto been a well-kept lawn disfigured by the grass being cut short in some places and in other places left long or scarcely cut at all, and sometimes the turf cut up altogether, and in other places ribbed.

To all young gardeners I would say, Learn to mow, and to mow well, and take an interest in that branch of your profession as well as in the more interesting part of gardening, so that when you become masters and have men under you, and perhaps an apprentice, you will be able to teach with confidence.—G. DRAY, *Pilsey Park.*

BAMBOO SHADING.

IN the annexed engraving (fig. 42), is represented a mode of shading adopted and recommended by the New Plant and Bulb Company, Colchester. For plants requiring subdued light in summer, such as Ferns, Palms, Orchids, and various fine-foliaged plants, this mode of shading is very suitable and is not liable to be injured by wind, yet it is at the same time light and also durable. Moveable shadings have an advantage over pigments applied to the glass, inasmuch as shade is only afforded when it is needed by the former system, whereas by the latter the shade is often too dense during a term of dull weather. Bamboo screens are also recommended for ensuring the glass from breakage by hailstorms during the summer, and for this purpose they are no doubt effective. Screens of this nature are extensively employed in continental nurseries, and give great satisfaction ; we have also seen them used with advantage for sheltering bedding and other half-hardy plants during the spring months, and for shading such plants as Camellias when placed in the open air during the summer.

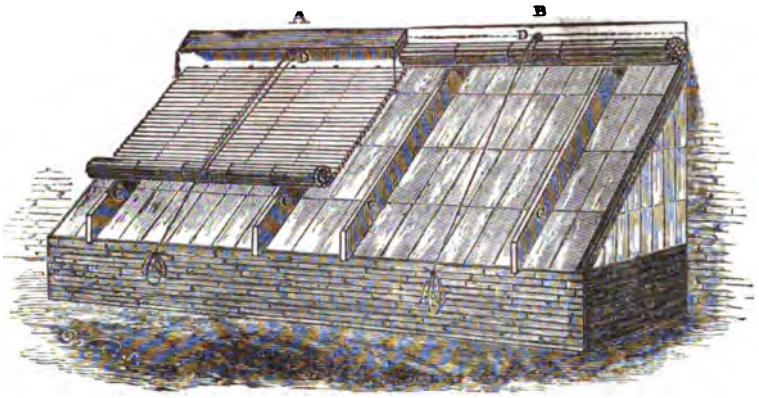


Fig 42.

A, Bamboo mat partially unrolled, with box at top for its protection.
B, The cover of the box removed to show the mat rolled up when not in use.
C C, Bearers for supporting the mat, 10 to 12 inches above the glass.
D D, Screw pulleys round which the cords run to pull up the mat.

The shading referred to consists of light bamboo rods, a little stouter and stronger than reeds, varying from three-sixteenths to three-eighths of an inch in diameter, the smaller size alternating with the larger size, while stouter rods, three-quarter inch thick, are interspersed here and there to strengthen the whole, interlaced about every 9 inches apart with a coarse strong and durable twine made from the outer husk of the cocoa nut, in widths of from 8 to 10 feet, and in lengths as ordered. The rods when put up run horizontally. The mat, being perfectly flexible and very light, can, when in use, be easily rolled up by a cord fastened above, passing downward and beneath the mat, round the roller of the mat at its lower margin, then up again to the top, whence passing over a screw pulley, the cord descends again to the bottom of the mat, where it is within reach of the manipulator.

SUMMER FLOWER BED ARRANGEMENTS.

"J. H. R." asks for a few hints how to utilise the common sorts of bedding plants, and "IRISH SUBSCRIBER" wishes to know if it is permissible to associate beds of Geraniums and similar plants with carpet beds; also if the plants employed in the carpet beds of the metropolis will succeed in the moist climate of the Emerald Isle and withstand the effects of cold winds. Such questions suggest that there are many owners of small gardens to whom a few hints may now be useful, and in order to render them as clear as possible I will classify each under a distinct heading.

CARPET BEDDING.—This popular style of arrangement is so durable and effective, and admits of so much variety in small beds, as to excite a spirit of emulation in the bosom of many an enthusiastic amateur whose plants are numbered by the dozen rather than the hundreds and thousands required to do full justice to a small group of carpet beds. Due consideration must therefore be given to ways and means before its adoption is resolved upon ; effects of climate must also be thought of, and when gardens are exposed to the adverse influence of cold winds it is well to pause, as "IRISH SUBSCRIBER" has done, and think twice before a prominent position is assigned to tender plants such as Coleus and Alternantheras requiring the temperature of a stove to keep them alive in winter, the failure of which would mar the effect of the whole. Bearing in mind never to venture upon plants of this class except the garden is well sheltered or quite safe in the sunny south, much may be done with the aid of the more hardy Saxifragas, Sedums, Sempervivums, and Echeverias among succulents, as well as such yellows as Arabis lucida variegata, Golden Euonymus, Vinca elegantissima, Golden Fleece Thyme, Thymus marginata elegantissima, Sedum acre elegans, Lonicera aureo-reticulata, and Golden Pyrethrum ; such grey and white variegated plants as Santolina incana, Leucophyton Brownii, Antennaria tomentosa, Achillea umbellata, Gnaphalium lanatum, the silvery-edged Thymus variegata, Euonymus radicans variegata, and Polemonium cæruleum variegatum, with Mentha Pulegium gibraltarica, Sedum Lydium, and Veronica Loudoniana for green, the Iresines Herbstii and Lindeni for crimson, and the Lobelias for blue. All these plants are of proved merit, and they afford sufficient variety for an entire design. Almost all of them make capital edgings to beds of tall-growing plants, and carpet beds may be mingled with beds of tall plants agreeably, each gaining something in effect by force of contrast, the tall plant also serving to relieve the somewhat monotonous flatness of carpet beds.

ORDINARY BEDDING.—By this term I allude to such plants as Geraniums, Verbenas, and Calceolarias. With an abundant supply of plants our aim should be to make rich masses of colour, giving preference to the numerous shades of pink and crimson that we now have among Geraniums, with only an occasional bed of scarlet to impart brilliancy, and of dark purple or other quiet shade to soften the brighter colours, taking especial care to have edgings of dwarf neat-growing plants to every bed, mingling the colours in pleasing harmony and agreeable contrast. Grey tells well next to grass, and is therefore most used for edgings. It may also be repeated in the interior of a bed. For example, we may have grey, blue, grey ; or grey, blue, pink, and grey. Of other mixtures there may be white, pink, purple, yellow ; yellow, crimson, purple, and grey. Scarlet next to deep crimson, or scarlet next to purple, but not next to yellow. We have no better colour for a central mass than a deep crimson, and if the mass be a large one it should have a broad margin of three or four rows of a golden tricolor Geranium with the flowers kept picked off. Such a mass imparts a peculiar rich tone to an entire design, to which some smaller clusters of the same colours near its boundaries materially contribute.

When there is not enough bedding plants do not forget how valuable annuals are easily raised—varied in colour and durable. When there is space, beds in sunny positions should always be afforded for Portulaccas, double and single Zinnias, Petunias, Asters, Stocks, Phlox Drummondii, Linum, and Saponaria. Do not, however, attempt too much with numerous large beds and borders and insufficient means for raising plants. It is a better plan to fill the centres of beds and the back part of borders with hardy perennials, only leaving space enough in front for the number of plants we can feel confident of raising well.—EDWARD LUCKHURST.

ANEMONE STELLATA.

A. STELLATA (the Star Anemone) is a well-known and favourite species, having been cultivated in this country for more than two centuries. It is a native of the southern parts of Germany and of France, Italy, and the Levant. Unlike

most of the species already figured, it has produced a number of varieties with flowers varying from purple to nearly white, but the normal colour of the species appears to be a light purple. It is commonly credited with being one of the parents of the numerous and showy family of Poppy Anemones, double and single, which are less popular now, when a more refined

Fig. 43.—ANEMONE STELLATA.

taste prevails, than they once were. A very beautiful variety has been recently introduced from Greece, and is grown under the name of A. stellata fulgens. Its flowers are large, of a brilliant vermilion scarlet, and are borne on stalks 10 to 12 inches in height. The petals are more numerous and less pointed than in those of the type, and it also appears to have a longer period of blooming.

Its place in the garden is a warm sheltered border, or on rockwork where the soil is deep and light. Where it succeeds at all it can be speedily increased by division, but it also ripens

its seed freely. Flowers end of April and beginning of May. —R. D. TAYLOR.

PARAFFIN, ITS USE AND ABUSE.

I BEG to inform Mr. B. Cowan that I have used paraffin with perfect success for upwards of three years; but—like all other antidotes for scale, mealy bug, &c.—it requires great care in its application, and this knowledge can only be obtained by trial upon different plants. All gardeners are well aware that too strong a dose of insecticide (Fowler's) will cause great injury to Cinerarias.

I would certainly not recommend the same application to Camellias that have commenced their young growths as to those which have firm wood and leaf. My Crotons have been twice sponged during the last six months, and I find no evil effect from it, and would therefore seek elsewhere for the cause of Mr. Cowan's Crotons losing their leaves—very probably a sudden change of temperature or a cold draught flowing direct upon them. I have used paraffin for sponging Orchids with the same success, but on no account would I use this mineral oil for dipping any form of plant. The syringe judiciously used is far preferable. The quantities as used by Mr. Cowan are even less than my own practice, and therefore I am at a loss to account for his cause of complaint. My Vines have all been dressed with a strong mixture of paraffin, soot, and sulphur, and the strength of the young wood now is a proof that the Vines have not suffered from the use of such a strong decoction. To young gardeners I say, Act with caution; old men, as a rule, do not require this advice. —AIREDALE.

ANOTHER VISIT TO THE TOOTING NURSERIES.

WHEN I was at Tooting last week Mr. Barr asked me to come again in another fortnight to see the Daffodils. This I am unable to do, but as I was passing through London on my way home from the north I took the opportunity of paying a visit not only to his grounds but also to Mr. Robert Parker's. It was a cold dreary day, and I had travelled from Yorkshire, so it was not under favourable circumstances that I paid this visit; but those who live in such distant lands as I do cannot pick and choose their time, but must go when they can.

I found a great many Narcissuses in bloom at Mr. Barr's, and I would strongly advise any of your readers who are fond of this bulb to pay an early visit to these experimental grounds. A whole bed was devoted to that smallest specimen of the Daffodil family which is very properly called minimus. These tiny little bulbs do not rise higher than a Crocus or Daisy, but when planted in masses and when the sun shines they present the appearance of a carpet of gold. Mr. Barr has a large and very valuable collection of Narcissi formed and named and classified by the late Mr. Leeds, but this classification has been much improved by Mr. Barr. These Narcissi are beginning to bloom, and a vast variety already presents itself to the eye of the visitor. Besides the Daffodils there were several other bulbs and plants in bloom.

Since I was last at Tooting the Primroses have come into bloom. I had no idea that there was such a large variety of these charming plants. I was surprised to see the size of the pips of some. I noticed one pure white in colour, as large as an Auricula, with a most perfect eye. Every shade of red, white, and blue was represented, and the pips varied in size from one as large as a shilling to some as small as the coin I heard a clergyman once describe as the most unfortunate of all, a threepenny-bit.

A great number of Scillas and Muscaris were in bloom, and a whole bed of Iris reticulata made the gardens quite gay. Several Iris persica with their white flowers charmed me, and a bed of that large handsome Saxifrage (Megasea) crassifolia made up in the size and colour of the blooms for the many shortcomings of this late season. A large collection of hardy Cyclamens in pots and in beds were in full bloom, so that the gardens may almost be called gay.

Mr. Parker had not so large a variety of Daffodils or other bulbs in bloom, but he had many interesting Alpine and aquatic plants which well repaid me for my visit. Several beds were full of Arabises, the white flowers of which gave them the appearance of being covered with snow. Aubrietia deltoides and a new variety called aurea are interesting Alpine plants. Ficaria ranunculoides grandiflora was in bloom, and several varieties of Hepatica and Dogstooth Violets made the place bright even on a dull day.

I noticed several varieties of the Saxifrage family in bloom, and I would strongly recommend any of your readers who wish to buy these rock plants and do not know what to select to obtain the following, which were all in bloom on April 9th —Megasea media and pulcherrima, and Saxifraga primulina, Burseriana, coriophylla, diapensioides, retusa, and Rocheliana. Several of the Puschkinias were in full bloom, among others compacta and scilloides. Scilla sibirica and a new unnamed variety were also very attractive. Lastly I saw a fine specimen of Triteleia uniflora lilacina.

I have written these few notes with the hope of assisting anyone who may be anxious to know what hardy bulbs and Alpine plants are in bloom at the present time, and in the hope that more people will pay attention to these interesting plants.—WYLD SAVAGE.

PORTRAITS OF NEW AND NOTABLE PLANTS.

FRITILLARIA KARELINI. *Nat. ord.*, Liliaceæ.—"This singular plant has been known for a long time. It was sent as long ago as 1836 by Dr. Fischer of St. Petersburgh to Mr. Anderson of the Chelsea Botanic Garden, and was figured at the time in Sweet's "British Flower Garden," from the dwarf starved specimens that flowered at Chelsea. Within the last few years it has been again introduced, and has been grown successfully by several different cultivators both in Germany and in England. In a wild state it is widely diffused, as it reaches from the Ural and Altai Mountains southward through Persia and Turkestan to Beloochistan and Afghanistan. It has not yet been found within the bounds of the Flora Indica. The claims of Rhinopetalum to be regarded as a genus distinct from Fritillaria rest only upon the fact that the foveole of the upper segment of the perianth is decidedly deeper than those of the other five segments, which gives the flower a slight irregularity; but the plant is so completely a Fritillary in all other points, that when the genus was monographed it was kept as a section only. The specimen was communicated by Mr. G. Maw, with whom it flowered early in the month of October of last year."—(*Bot. Mag.*, *t. 6406.*)

VERONICA LONGIFOLIA, *var.* SUBSESSILIS. *Nat. ord.*, Scrophulariaceæ.—"This brilliant Speedwell hardly differs, even as a variety, from the European V. longifolia, which ranges from Lapland, Denmark, and Lombardy in the west, through middle Europe, and N. Asia to China, and thence to the Island of Saghalien and Japan. The specimens from the latter country have been distinguished as a variety by Miquel, on account of their broader leaves, very short petioles, and sparse pubescence, but there are as broad and as shortly petioled specimens in Europe; and the leaves of some Japanese ones are narrow-lanceolate. It is further very near the common continental V. spicata, *L.*, and the S. Europe and N. Asiatic V. paniculata, *L.*; and, as Bentham remarks, is connected with these by intermediate states or garden hybrids; so that it is difficult to assign the limits of the species in the wide-spread and beautiful Pseudolysimachia section of the genus to which they all belong. In cultivation the Japanese plant is a superb object, with its dense spikes of amethystine blue lucid flowers, and deep green leaves. It has been introduced by Messrs. Ware of Tottenham, who sent the specimen to Kew in August of last year."—(*Ibid.*, *t. 6407.*)

DIOSCOREA VITTATA. *Nat. ord.*, Dioscoreæ.—"The earliest mention of the present plant is in Mr. Bull's catalogue above cited. We have had it in the Palm house at Kew for many years, but it never flowered till last autumn. It agreed with a plant belonging to the section Epistemon of Grisebach, which we have had in the herbarium for a long time without any specific name, gathered by Salzmann near Bahia; the dried specimen, like the living one, representing only the staminate plant."—(*Ibid.*, *t. 6409.*)

WORK FOR THE WEEK.

KITCHEN GARDEN.

PROMPT attention will be necessary to prevent injury to seed crops just coming up. Small birds are often troublesome, especially the chaffinch, which pulls up the seedlings before the first leaves are fully formed. This may be prevented by coating the seeds with red lead before sowing them, or if that has been neglected the seed beds must be netted over. Dusting with dry soot on damp mornings will make the seedlings distasteful to the birds, especially sparrows, which are very fond of the tops of Peas and attack them when just above ground. If slugs are troublesome fresh-slaked lime is most suitable, as most of the slugs it falls upon

will be destroyed. Use the hoe freely among crops in drills in favourable weather. Clear away the stalks of exhausted crops of Broccoli, Brussels Sprouts, Borecoles, &c., and prepare the ground for successional crops of Peas or early Celery, it being a good plan to manure well after every crop, and to dig or trench the ground at once. Attend to the earthing-up and staking of Peas when sufficiently advanced, making a sowing about every fortnight, or as required to maintain the succession, and sow a row or two of Spinach between the rows of Peas. Perpetual or Spinach Beet is an excellent substitute, and if sown now in rows 15 inches apart will afford a good supply all through the summer. Sow Broad Beans so as to meet the probable demand. The supply of Radishes and Lettuces will need to be maintained by sowings every two or three weeks. A sowing of French Beans may now be made upon a warm border; Osborn's Forcing, Negro Long-podded, and Canadian Wonder are suitable. A sowing of the former at a foot distance from the base of a south wall will come in some days earlier.

Herbs of some kinds are constantly in request in most establishments. The run is generally on Tarragon, Chervil, Thyme, Sage, Mint, Savory, Marjoram, Basil, &c. Plantations of the kinds most in request should be made annually during this month on a sheltered border, an east one being suitable. Divide the roots of such plants as pot Marjoram, Tarragon, Lemon Thyme, Penny-royal, and Tansy, and plant them in rows 15 inches to 18 inches apart; common Thyme and Sage may also be divided, but seeds of Thyme and Sage sown in drills 12 to 15 inches apart afford better results. Sow also Savory of both kinds, Sweet Marjoram, Sweet Basil, and Chervil, with any other kinds not so generally grown, or increasing by cuttings or division of the roots any of which a further supply is necessary. Fresh plantations of Mint are best made when the young shoots are 3 to 4 inches long, taking up the plants with a few roots attached and planting them about 1 foot apart every way, with an alley between every third or fourth row. Change of soil in the case of herbs is as necessary as for other crops. Potatoes should be planted as expeditiously as possible. Protection should be at hand as soon as the earliest crops appear above ground, litter being very useful. A little trouble in placing it over the tops in frosty weather may prevent irreparable mischief, removing it in mild weather.

Forcing Department.—Tomatoes will require considerable attention in stopping and tying, removing all laterals as they appear, keeping one stem only, and when the plants have produced four or five trusses of blooms stop the lead, and when the fruit is set apply liquid manure liberally two or three times a week. Admit air very freely to all plants in frames or pits, and from those in which are Lettuces, Cabbage, Cauliflower, and Brussels Sprouts for planting out, remove the lights whenever the weather is favourable. As soon as the plants are large enough and well hardened plant them out, thereby liberating the frames for forwarding the later crops of Tomatoes, Capsicums, and French Beans, the latter being better if removed from fruit houses. A sowing of French Beans made in a pit or ground vinery will come in a long time before those in the open ground; sow them in drills about 18 inches apart, affording 10 to 12 inches depth of good rich soil, placing the Beans about 4 to 6 inches apart. Osborn's Forcing and Canadian Wonder, which gives some fine pods, are the most suitable. Where very early Celery is required the plants should now be strong in 4 or 5-inch pots, and being grown near to the glass they will be sturdy and may be planted out under handglasses, the soil having previously been taken out 1 foot deep, placing 6 inches of well-decomposed manure at the bottom, and on the surface 3 or 4 inches of soil to plant in, putting out four plants under each glass at equal distances, keeping moderately close for a few days, when air may be given more freely in favourable weather, but keep the glasses on at night.

FRUIT HOUSES.

Figs.—Such varieties as Early Violet and Early Prolific of the earliest forced trees in pots will be showing signs of ripening the fruit, when watering must be gradually reduced and syringing must cease; but those swelling the fruit should be assisted with liquid manure twice a week, syringing the trees at closing time. Ventilate freely in favourable weather, which will secure stout growth and leathery healthy foliage. No fruit tree is more benefited by the full rays of the sun than the Fig; any kind of shading, whether by other plants or too much of their own foliage, is injurious and must be strictly guarded against by pinching out the young growths in the later-started houses, and thinning out all the overcrowded shoots. The borders should have a mulch of half-decomposed manure, and this with copious waterings will impart vigour to the trees. The night temperature when the trees are in full leaf should be maintained at 60° to 65°, and 70° by day, allowing it to rise to 80° or 85° from sun heat. The cuttings having been inserted some time ago as advised, and it being intended to grow them in pots for fruiting, they should be shifted into larger pots, so as to afford time for their forming good well-ripened bushes before autumn. From the cutting pots they may be transferred to 6-inch pots, and as they get larger, which they will do rapidly, they may be transferred to 9-inch, and have a final shift into the fruiting pot—viz., 12-inch. Turfy loam, with an admixture of not more than a sixth of old lime or brick rubbish, a sprinkling of half-inch bones, and a little decomposed manure, the whole well incorporated, will suit them admirably, employing plenty of drainage, as it is necessary that the water pass away freely.

Figs in the open air should now have the protection removed and eventually pruning the trees, thinning out the least fruitful shoots and old and bare growths, avoiding overcrowding, as it is a common error in Fig culture against walls. The shoots for bearing may be allowed to grow loosely from the wall, stopping at the third or fourth joints on the young wood, which will assist the swelling of the fruit and induce the trees to break and produce short-jointed wood from the base of those shoots in bearing.

Peaches and Nectarines.—Continue syringing the trees twice a day in the earliest forced house, and if there is the least trace of red spider apply an insecticide, it being important that the foliage be thoroughly clean by the time syringing ceases, as it must when the fruit commences ripening. Afford thorough waterings as required to inside borders, and supply such trees as are weak and swelling off a heavy crop with liquid manure. Keep the shoots well attended to in tying-in, and attend early to disbudding and thinning the fruit. In succession houses after the fruit has set and is swelling freely syringe the trees twice a day, and in the latest structure a gentle damping of the house in the morning and early afternoon is advantageous—the weather being dry and the sun hot—as a parching atmosphere is as pernicious as an over-moist one to the setting of the fruit. Avoid, however, a close moist atmosphere, and in dull weather turn the heat on for a few hours, so as to secure a day temperature of 50° to 55° with free ventilation. If there is an excess of blossom run the hand on the under side of the shoots downwards, and so displace a portion of the flowers. This more particularly applies to weakly trees; and although the pollen will be more likely to be dispersed by the free ventilation, yet other means of securing a good set, such as shaking the trees or trellis, and brushing the anthers with brush, feather, or some other contrivance, must not be neglected.

Melons.—The earliest plants, notwithstanding the adverse weather, are now swelling off their fruit; secure to them every ray of light by keeping the glass clean, and water liberally at the roots, providing plenty of atmospheric moisture. Avoid overcropping; it not only diminishes the size of the fruit, but is fatal to high quality, which is everything in a Melon. Apply liquid manure liberally when the fruit is swelling and nearly ripe; but avoid stimulating plants before they have set their fruit. While observing a drier condition of the atmosphere and roots when the fruit is setting do not allow the foliage to flag; attend regularly to the setting blossoms, and do not prune if possible during the setting period, but stop the growths as the blossom upon each is impregnated. Maintain a night temperature of 70° to 75° by day, and 85° to 90° with sun heat, ventilating moderately, avoiding as much as possible sudden fluctuations of temperature. Later plants, especially those in pits or frames, will now be showing fruit, and unless they are showing in abundance remove the first lot, for it is important that the female blossoms be nearly of one stage of growth, a condition that cannot always be secured, but there will be no difficulty with plenty of foliage in securing five or six female blossoms of simultaneous growth on each plant which should be fertilised. Maintain a good bottom heat, and maintain a dry condition in the atmosphere. After the fruit is set let them be placed on a piece of slate, and ultimately raised on a flower pot above the foliage. Continue to earth up the plants as they advance in growth, to make up new beds, and to plant out, potting off and otherwise preparing for planting successional beds. Look out for canker at the collar, and prevent its spreading by rubbing quicklime into the affected parts.

PLANT HOUSES.

Greenhouse.—Strike cuttings of Salvia gesneræflora, S. Heeri, and S. splendens to afford plants for winter flowering. Cuttings of moderate strength are the best, inserting them in loam and sand in equal proportions, placing the pots in gentle heat. Pot off singly in 4-inch pots when rooted, returning the plants to heat until established, then remove them to a cold pit, affording more pot room as required. Hydrangeas have fine heads of flowers, and small plants are very useful for decorative purposes. Plants that are being forced into flower will have suckers springing from the base, which if taken off and inserted in small pots root quickly in gentle heat; when they are well rooted shift the plants into 4-inch pots, and finally into 6 or 7-inch pots, care being taken to have the wood well ripened, and they will flower finely next spring. Shift Humea elegans into flowering pots (the fragrance of this graceful plant is appreciated in the conservatory); also Campanula pyramidalis and its white variety, employing 8, 10, or 12-inch pots, according to the strength of the plants, and using good turfy loam with a fifth of well-decayed manure or leaf soil and a little sand. They are stately plants for the conservatory. Shift young plants of Solanum Capsicastrum into 4-inch pots, and prepare for planting out of doors when the frosts are gone. Old plants should be cut well back, and when starting into growth remove a portion of the old soil and plant them 18 inches apart each way on a warm border, so as to have the plants early in flower.

and berry. Repot Fuchsias, stopping the shoots until the plants are sufficiently furnished, using the syringe every afternoon to keep down red spider. Encourage Calceolarias with liquid manure, and fumigate upon the first appearance of aphis, for if allowed to remain it soon spoils their appearance. Pelargoniums now throwing up their trusses should be assisted with a little liquid manure every other time they are watered. The pots being well filled with roots the plants must not be allowed to suffer for want of water, or the foliage will be spoiled. Have the shoots well trained, and keep a strict look-out for aphides, destroying them as soon as discovered. Plants required for July flowering should have the points of the shoots pinched out, and be shifted into larger pots if the roots are cramped. Pot off Chrysanthemum cuttings inserted early in the year, using good loam with a fifth of well-decayed manure and a sixth of sand, pinching out the points at 4 to 6 inches of growth, and keeping the plants gently growing in a cold frame.

Ferns.—Tree Ferns will be growing rapidly, and must not be neglected for water. They will be benefited by having their stems syringed twice a day; but where this is done it is necessary to water well at the roots, as the syringing makes the surface of the pots or tubs damp whilst there is a deficiency of water lower down; and as many kinds of Tree Ferns can be kept in comparatively small pots, making strong vigorous growth, they require very copious supplies of water, especially when pushing up the fronds. Some Ferns are impatient of syringing overhead, such as Nothochlænas, Cheilanthes, and Gymnogrammas; but a good moisture must be maintained by sprinkling every available surface of the house two or three times a day, whilst most of the vigorous kinds are benefited by a gentle syringing in the morning and late afternoon. Dwarf-growing kinds should be kept near the glass; it is a mistake to treat them as if they delighted in intense gloom. All that most kinds require is the fierce rays of the sun broken by a light shading material, which must now be employed when the sun is powerful, but should be so contrived as to be withdrawn when it is obscured by clouds. Copious supplies of water will now be required, avoiding, however, making the soil sodden by needless waterings. Those intended to afford fronds for cutting should have no more shade than to prevent the fronds from being scorched. Keep a strict look-out for insects, fumigating against thrips two or three evenings in succession, and any plants infested with brown scale should be thoroughly cleaned whilst the scale is young.

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (*J. C.*).—Chambers' "Information for the People" can be procured through any bookseller. (*J. W. W.*).—Mollison's "Practical Window Gardener" may suit. Black fly or aphis can be prevented by the air of the case being kept moist. (*A. C. B.*).—As your knowledge of botany is slight, you cannot, perhaps, do better than obtain "Familiar Wild Flowers," published in monthly parts by Messrs. Cassell & Co.

NURSERY MANAGEMENT.—"*A York Seedsman*" wishes a good book on this subject in all its branches.

ADDRESS (*G. M.*).—Write to Messrs. Dick Radclyffe & Co., 128 and 129, High Holborn, London, W.C.

PAYING WAGES (*Constant Reader*).—You can only legally claim payment for the time that you were actually working; but it is usual for a man to be paid for the day on which he enters his situation. You must not think of a "trial" under the circumstances. With perseverance and good judgment on your part your situation may yet prove a comfortable one.

PRUNING RASPBERRIES (*E.*).—It is very advisable to encourage the production of good fruiting canes rather than to seek a crop of fruit the first year. Shorten the recently planted canes to within a foot from the ground, and mulch over the roots with good manure. If the young growths which issue are numerous, thin them when a few inches high, not leaving more than four or five to each stool. The shortened canes may produce a few clusters of fruit, which may be permitted to ripen, as they will not materially affect the new growths, which will then be well advanced and growing vigorously.

SUBSTITUTE FOR YELLOW CALCEOLARIA (*A. B. C.*).—We do not know of any yellow-flowering plant that can be raised from seed so suitable for a line in a ribbon border as Tagetes signata pumila. The seed should be sown now, the plants being treated the same as French Marigolds, so that they are strong and sturdy for planting out in May. Allow the Tomatoes to grow, not pinching them again until they flower, then removing the points of the shoots above the fruit, and all growths below, except a few large leaves. Add fresh soil to the Melons as the roots appear on the surface, making it firm. You will have sufficient depth of soil, especially if you give the plants liquid manure when the fruits are approaching the size of a cricket ball and swelling freely.

FLOWER BORDER ARRANGEMENT (*A. B. C.*).—Your arrangement is good and requires no alteration. You do not give the colour of the Geranium; see that it is of a rich crimson rather than a bright scarlet next yellow, and the effect will be excellent. A border of annuals and Gladioli will answer very well on the north side of a low trellis. Make no formal rows in it, but mingle them in all parts of the border so as to retain some brightness in every part as long as possible. For neatness you might have a broad margin of Portulaccas, and among the Gladioli such good annuals as Zinnias single and double, Asters, Phlox Drummondii, Ten-week Stocks, Clarkias, Godetia Lady Albemarle, Eschscholtzias, Nasturtiums, Larkspurs, Linum grandiflorum rubrum, Mignonette, Nemophilas, Saponarias, and Poppies. You can have the number you require for 3½d. in stamps.

ERECTING GREENHOUSE—BORDER FOR VINES (*A Regular Subscriber*).—The proper time to erect a greenhouse is during summer, so that it can be thoroughly painted, &c.; but with the wood in a prepared state it may be erected at almost any time. In making the front wall we should construct it so that the Vines may be planted inside the house, having pillars of 9-inch brickwork at distances of 2 feet 9 inches apart, which will leave 2-feet openings to allow of the roots passing into the outside border, which should be the same width as the house; but the inside border need not be more than 3 feet in width. The openings will need to be arched over so that the crown will be a little lower than the intended ground level. The border should be 3 feet deep, and have a drain with a proper outlet to carry off superfluous water. Six to nine inches of drainage should be placed at the bottom—brickbats or other rubble, and over this a layer of turves grass side downwards. The border may be composed of the top 3 inches of a pasture where the soil is a rich and light loam, chopped up moderately small, adding a tenth part of old mortar rubbish, a fifteenth part of charcoal, and a twentieth part of half-inch bones, the whole being thoroughly incorporated and filled in 9 inches higher than the intended level. The proper time to plant Vines is in April, and the border should be made during March or the first favourable weather following. If the soil be good and efficiently drained it will grow fair crops of Grapes, merely trenching and adding to it some half-inch bones. Three Vines will be sufficient, planting one in the centre and the others 2 feet from each end of the house; Black Hamburgh, Mill Hill Hamburgh, and Foster's Seedling being suitable kinds.

TROPÆOLUM AZUREUM NOT GROWING (*J. M.*).—The shoots have no doubt been rubbed off after they have commenced growth, and they will not start again the same season unless there be other dormant eyes, which do not appear to be present in your case. Leave the tubers in the soil; they may form fresh eyes another year.

LETTUCE *versus* COCKROACHES (*W. F. B.*).—These pests will eat Lettuce, but unfortunately are not poisoned thereby, nor is the rind of Cucumber any better. Poison is the only remedy, which may be procured of most chemists, phosphor paste being very effectual, but use it carefully.

PEAS FOR SUCCESSION (*G. S.*).—Your selection is good, and by sowing at fortnightly intervals up to the middle of June you should have an unbroken succession until the frost arrives. Sow Supreme and Criterion now, following with Standard and Champion of England, Dr. Maclean, and Veitch's Perfection, Premier, and Culverwell's Prolific, finishing with Ne Plus Ultra in the middle of June. Fourteen to sixteen weeks are required from the time of sowing until the pods are fit to gather. You may sow at weekly intervals one quart of each variety at a time.

FERNS FOR WINDOW CASE (*William Mount*).—Blechnum spicant imbricatum, Asplenium marinum, A. Adiantum nigrum, Polypodium vulgare elegantissimum, Polystichum angulare cristatum, P. angulare Grayi, Scolopendrium vulgare fissum, S. vulgare multifidum, and Adiantum Capillus-Veneris. Green glass may be used for the roof, but rough plate is equally suitable.

RAISING BLUE LOBELIAS (*A. B.*).—As you have no heat you cannot do better than sow the seed at once in very light rich soil under a handlight, keeping the soil moist and the glass shaded until the seedlings appear, then encourage their growth by watering them with tepid water. When large enough the plants may be transplanted in the beds. As they will necessarily be small and late they should be planted closely—1 or 2 inches apart. They will not flower until late in the season. The soil is too cold and wet for the double Lychnis: place it on the rockery as you propose, if the position is an open one. We cannot name plants for your rockery without knowing its aspect. If it is shaded, Ferns are the most suitable; if not shaded, all kinds of border and Alpine plants will succeed if the soil is good and the plants are watered as required.

TREE FELLING BY MACHINERY (*E. Doodt*).—Messrs. Ransome & Sims, Ipswich, have patented a steam tree-feller, which does its work with great expedition. At some experiments made on the Roupell Park estate, in the presence of Mr. Gladstone, a tree 3 feet in diameter was felled in four minutes. We do not know anything of the "ingredient" to which you refer.

APPLYING LIQUID MANURE TO VINES (*C. M.*).—It is best applied after the Grapes have been thinned and are swelling freely, and until they are changing colour, when the last good soaking should be given. The stable, pigstye, cowhouse, and other drainings are all valuable, and may be used diluted with six times the volume of rain water, at a temperature of not less than 80° nor exceeding 90°. Follow the directions as sent out with Amies' chemical manure, or apply it at the same rate as guano—viz., 1 oz. to a gallon for watering, or 1 oz. per square yard sprinkled on the surface and washed in with tepid water.

CINERARIAS UNHEALTHY (*X.*).—Your plants have received a check at the roots, either by insufficient pot room or want of water. They also probably suffered from the dry atmosphere of the house. You will find notes on the culture of Cinerarias in another column.

TEA ROSES DISCOLOURED (*C. D.*).—We can only suggest that the house is too damp and cold, and that more heat and air are required to enable the blooms to expand freely.

STARTING VINES (*Park Hill*).—We do not approve of "assisting" Vines planted at this period of the year with any great amount of fire heat. Provided the night temperature of the house does not fall below 40° until the Vines are fairly swelling their buds no injury will result. When they have grown half an inch a minimum temperature of 45° will be ample until the shoots are an inch in length, when a rise of 5° is desirable, and 5° when the foliage is expanding. These temperatures can be maintained without fire heat except during exceptionally cold weather. The growth will be slow at first under this treatment, but in the end it will be more satisfactory than if the Vines were started quickly in the early stages of growth. You can obtain the information you require on your second question by writing to the Assistant Secretary of the Royal Horticultural Society, South Kensington.

ASHES OF SEAWEED (*S. S.*).—The ashes would prove a valuable appli-

cation for the Vine border, and as the salts of which they are composed are soluble, they would be washed down to the roots by the rains. Spread the ashes on the border and point them in carefully with a garden fork.

NAMES OF PLANTS (*E. H.*).—1, Begonia. We cannot name the species without flowers. 2, B. metallica; 3, B. natalensis; 4. Gymnostachyum Verschaffeltii; 5, Gardenia florida; 6, Begonia Marshallii. (*Robert Lewis*).—1, Dendrobium Wardianum; 2, D. Devonianum. (*Francis Pye*).—The botanical name is Arabis lucida variegata, a native of Hungary. The popular name is the Shining Rock Cress. (*Helena*).—Davallia platyphylla. (*Rose*).—Angraecum falcatum, a charming miniature epiphytal Orchid introduced from China in 1815. A plant has recently flowered in Mr. Williams' collection at Holloway. (*William Harris*).—Cornus mascula. (*M. M.*).—The one with yellow flowers is Ranunculus Ficaria. We cannot name the other from such a poor specimen. (*R. M.*).—Too much shrivelled for identification.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

CULTIVATION OF SAINTFOIN.

WE made a few observations relating to this plant last year, in this Journal on the 28th of March, under the heading of "Clovers and Grasses." At present we intend to treat the subject fully and at some length. Saintfoin is a plant which has been grown upon the chalk hills and stone brash soils from time immemorial. This, however, refers to the common and original form, but during the present half century we have had what is commonly called the giant saintfoin introduced. It was not until about the year 1840 that this began to attract sufficient notice to bring it before the generality of farmers, and even then the price at which it was sold up to the year 1845 was from 70*s.* to 80*s.* per bushel, but the prejudices of agriculturists were so strong that it was some years before it began to attract general attention.

Saintfoin is certainly the most valuable fodder plant for a permanency which is adapted for chalk soils and light dry land, which must have a sufficiency of lime in it for the plant to prosper to its fullest extent. The giant saintfoin is often sown upon the mixed soils of almost every texture except the strongest clays, but they must contain chalk. The seed of both the common and giant varieties is so much alike that the one is often bought and sold for the other, hence there is an impression prevailing in the minds of some farmers that they are of equal value. We shall, however, further on explain the difference.

The cultivation for saintfoin need not be very expensive as regards manure or tillage so long as the ground is clean; and although it is generally sown in the Lent corn, we prefer to sow it in the wheat provided that the wheat has been sown after a fallow, or fallow crop, such as trifolium or vetches fed off, followed by turnips, mangold, &c. Before drilling the seed the land should be dragged so as to obtain sufficient loose earth to bury the seed. The quantity of seed required per acre is generally from a sack to five bushels in the husk, but when dressed from 50 lbs. to 56 lbs. per acre are required. It is commonly sown broadcast upon the bare furrow and harrowed-in with the Lent corn; but we prefer drilling at 12 to 14 inches apart between the rows and across the rows of corn. It is also usual to sow 6 or 8 lbs. of trefoil per acre in order to make up a crop the first year, as the common saintfoin does not often yield a full crop the first season, but the giant variety will do so under favourable circumstances. It is very desirable to keep the crop clean and free from couch, water grass, or lop, the latter being a strong coarse hedge grass and very detrimental, and when the hay is used for foddering sheep on the land it is sure to seed the land with the lop grass. If, however, it is wished to retain the saintfoin of either kind for a number of years, it is desirable to keep it quite clean, which can only be done by horse-hoeing between the lines and dragging across. We use the same horse hoe as for wheat, the common hoe used for roots, the centre share being retained, and two outside shares made to match it. This moves the land well even upon the strong loams where saintfoin grows vigorously.

Saintfoin is seldom retained for more than four years, but this is generally because the land becomes very weedy and foul, or otherwise the plants die-out in consequence of the sheep having eaten-off the crowns of the plants. It will, however, last as a permanent crop for many years if cultivated and fed off with care and judgment. The roots of saintfoin oftener suffer from being unfairly eaten by sheep than by being overrun by couch or water grass. As an instance we may mention what came under our notice a few years ago when we were valuing-out a tenant upon a farm. In estimating the value of the roots of saintfoin we found them entirely covered and hidden under a rug of water grass, to which we demurred. The tenant, however, declared that it was an advantage, as the grass kept the roots warm in the winter and moist in the summer, and that he never failed to have a first-rate crop of very early growth in the driest of summers, and he added the grass afforded capital pasture for his cattle at all other times. Now this matter rightly considered may be turned to account, because following out the idea by growing yellow suckling and some permanent pasture grasses with the saintfoin, we may reap all the advantages without the injury and damage arising from couch, lop, &c., because we like to act upon the principle of pre-occupation in having taken possession of the surface with sweet and valuable grasses, and thus take a double crop, the saintfoin going down into the subsoil for its food, and the grasses fill up the whole space between the saintfoin roots, which may be manured with nitrate of soda or other manure, and thus obtain a full crop both of saintfoin for hay and grass for pasturage.

Saintfoin when considered as a crop in the five-course rotation is generally used for the hay crop and feeding for four years, and late in the autumn the old lea in the fourth year is ploughed and pressed, the grass and weeds being carefully tucked under the furrow, as they will be when the work is done properly. In early spring the land is sown with oats or drege, the latter being best; as the wireworm, the only enemy to cereal crops after saintfoin lea, seldom or never eats both when two sorts of cereals are mixed. Sometimes winter oats are sown, and they certainly suffer less from wireworm than does spring-sown corn.

We must now refer to the characteristics of the giant saintfoin as compared with the ordinary sort; and to obtain reliable evidence upon the subject we advise those who intend cultivating the giant saintfoin and are at all sceptical as to its peculiarities, to grow a portion of each sort in the same field. We have the best of evidence, besides our own observation, from farmers of great experience and intelligence to state that the giant variety will be found superior in many ways. The common will give one cutting for hay only, but a valuable after-crop as food for sheep or cattle. The giant sort will produce a full crop rather stronger in the stem, and it will be fit to cut for hay fully a week earlier. It will immediately make a most rapid growth, and may be cut a second time for hay in July or for seed in August, and after cutting for seed the growth often proves equal to that of the common variety which has been cut only once for hay. The giant variety is said not to be so hardy as the common, but we have no evidence to support that statement, for in case of either variety being fed off by sheep late in the autumn either sort would be more or less damaged according to the system of feeding. But this is not the case when fed by cows or young cattle, as they cannot bite close enough to injure the crowns of the plants, and when sheep are allowed to feed they would do but little injury if they fed off only one fold each day, and were not allowed to lie back. The injury is done by the continual gnawing of the sheep day after day the whole of the autumn.

The obtaining seed of the giant sort is a matter of prime importance. We have every reason to believe, as it is of foreign origin, that constant sowing in our climate alters the habit of growth just in the same way as climate influences Italian rye grass, for we may grow the grass in this country until it has lost its early and successional tendency in growth, and so it is with the giant saintfoin. We never think of purchasing home-grown seed even if we could be sure of its origin, but prefer to buy only the samples of seed from France.

The value of saintfoin hay stands A1. We find by analysis, when the best and richest pasture hay is taken as the standard, if placed at 100 lbs. nutritive value, only 90 lbs. of clover hay or only 89 lbs. of saintfoin hay are required as the equivalent. And we find, irrespective of analysis, that horse-keepers will always give a higher value for saintfoin than any other kind of hay the produce of either pasture or arable land. As green food for stock it is equally valuable. Both sheep and cattle, especially hungry dairy cows, do extremely well upon it, and are never known to become blown in the same way as when feeding off clovers of various kinds. Again, the giant variety on account of its quick habit of growth is a valuable alternation with clover in the four-course rotation, and when clover is grown upon one half of the break saintfoin may be grown on the other half, and it will afford two good mowings besides an after-feed, just the same as broad clover. Practically this is a matter of great consequence, because in the next rotation clover is much more likely to take, and the provision for cattle is also maintained and with much more certainty.

WORK ON THE HOME FARM.

Horse Labour.—This has been greatly diminished in consequence of the severe frosts and thaws during the winter, so that the work

of the farm is now fairly advanced. All the Lent corn, beans, and peas have been sown, and with the land in excellent condition but little more than half the usual amount of horse labour has been required. The potatoes, too, for the main crop have been or are being planted, with the land in prime condition, and if ordinary care has been used in selecting the varieties for planting there is a prospect of a good crop. The Champion for late planting is the best for field culture, and has not yet suffered from disease so much as some other sorts, particularly where the seed has been obtained as imported from Scotland.

The land is now in preparation for roots, and where lime is to be applied this is a good time for obtaining it, and if the full benefit is to be derived it must be applied properly. The lime hot from the kiln, in the shape of stones and lumps, should on reaching the land be deposited in the field where required. To exhibit the method of application we will suppose a field in preparation for potatoes, mangold, or any other root crop, and ready to receive its quota of lime. The ground is marked off into spots two rods apart each way (we have them forty spots per acre), the carts loaded with the lumps of lime are then drawn on, and about a bushel laid on each spot indicated. These small heaps are then covered over with some of the surrounding soil; numerous conical heaps then make their appearance all over the field. In a few days the lime begins to show itself, bursting through the earth covering; the heaps are then examined by thrusting a stick into them, and if it can be easily penetrated the lime is then considered to be sufficiently slaked to admit of being mixed. The heaps are then broken down, and the lime and earth are mixed and again made into conical heaps. The lime is then considered safe, and its virtues secured. On the first opportunity it may be spread, after which no amount of rain can injure it, the soil having been thoroughly impregnated with the lime, no matter how long if may remain before being ploughed or scarified in. The quantity to be applied must be arranged according to the requirements of the land, but under any circumstances light dressings repeated are better than heavy ones at longer intervals. It must be borne in mind that in those districts where chalk is not to be easily obtained that lime should be used instead, and 50 or 60 bushels per acre is enough at short intervals, say once in four years. The home farmer should always hold it in remembrance that none of our cultivated crops—either roots, cereals, or pulse—ever succeed as they should do without a fair portion of lime is present in the soil. It is an important fact, that although we may grow heavy crops of straw and large roots, yet without a proper portion of lime is found in the soil the grain will be deficient in quantity and quality, and the roots will not possess a full feeding value or be able to maintain soundness under the variations of our climate. But this applies more particularly to turnips and Swedes, a large portion of which crops usually stand over for winter and spring feeding.

We have several times alluded to the growing of White Canadian oats instead of barley upon loamy and mixed soils, and referring to our memorandums we find that in the year 1857 we sowed barley in one half of a field and the Canadian oats on the other half. The result of this experiment was as follows: The oats were harvested three weeks earlier than the barley, and upon threshing the crops the oats yielded eighteen sacks per acre and weighed 45 lbs. per bushel, whilst the barley only yielded nine sacks per acre of thin inferior grain. Both samples of corn we sold on the same day in the same market at 28*s.* 6*d.* per quarter, and on using the oat straw for feeding our fatting cattle we estimated it at nearly double the value of the barley straw.

Hand Labour.—Shepherds on home farms where foot rot lameness prevails must daily attend to their sheep, for if every animal is dressed the second day after showing lameness a cure will be effected without injury to its general health and condition. In our own case for many years we have not suffered to the extent of 6*d.* per head among our sheep or lambs during any one year, and the cost of treatment if judiciously applied is very moderate. The dairy cows are now fast dropping their calves, and therefore require the constant care of the herdsman. When the calves are weaned our practice is to wean all our Shorthorn calves at a few days old, giving them milk only for a week or ten days. We then gradually introduce a substitute composed of hay tea, bean or barley meal, and linseed cake meal. This sustains the calves in good condition until they begin to look for food; they then have some soft hay, which is after a time mixed with green fodder, such as trifolium. When we desire them to receive meal we first make up balls of meal and give them, which gradually induces the calves to take meal in pudding out of the troughs. We give it in this way without the waste which occurs in feeding with meal by itself.

The work now to be performed by men and women will be various, such as couching in dry weather, and when rain drives them indoors, breaking and sifting guano for mixing with damp ashes as manure to be applied to potatoes, or for mangolds, when the potato planting is finished. The best crop of mangolds we have ever grown was manured with this mixture being sown broadcast over the land, which was then stetched by throwing two furrows together, thus burying the manure in the centre of the stetch, and then sowing the seed on the stetch by hand drill.

AMATEUR COW-KEEPING.

In no place is this practised more economically or with more satisfactory results than in the isle of Guernsey, and we publish the details in answer to "I. E." and other correspondents.

It is found that to feed cows well and advantageously two at the least must be kept, and so managed as to calve at different times.

For their keep three acres of ground must be cultivated; and of these one acre is of grass, and the other two are cultivated on the four-course-rotation system, the two acres being divided into four portions, and each portion growing in its turn—1, winter oats, followed by stubble turnips; 2, parsnips and mangold wurtzel; 3, barley; and 4, clover.

From the produce of these two acres the cows begin to be fed sometimes in September; but if the season be mild, as is usual in Guernsey, not until October. The daily allowance to each cow is from 10 lbs. to 15 lbs. of hay, from 50 lbs. to 60 lbs. of mangold wurtzel, 10 lbs. of parsnips, and whatever straw they may choose to eat of that with which they are littered, the oats and barley being crushed and used in the winter for feeding with roots. If the fields are sufficiently enclosed the cows are sometimes allowed to pasture in them untethered from October to December.

During the spring, summer, and until about the end of September the cows are tethered either upon the acre of grass or the clover. The tether, varying in length from 12 feet to 15 feet, is sometimes entirely of rope, with a running noose to pass over the cow's horns at one end, and the other is passed over a strong iron pin about 18 inches long, driven nearly its entire length into the ground. The best tethers, however, have a small chain to pass over the cow's horns, looped round them by means of one large link, which is split on one side in the manner of a key ring, but with the split permanently wide enough apart to admit of the easy passage of a link of the chain. The iron pin is shifted from four to six times daily, according to the abundance of the pasturage. It is usually only moved from 8 feet to 4 feet from where it was previously fixed.

Milk and butter being the coveted produce the calf is taken from the cow immediately, very few cow-keepers allowing it to remain with its mother even a single day, and no one allows it to remain more than four or five days.

The average quantity of butter a good cow will produce is 1 lb. a day—*i.e.*, at the rate of a pound per day from calving to calving, although some are known to produce 14 lbs. to 16 lbs. per week, or from 4 to 5 cwt. during the year. From 10 to 16 quarts of milk for a considerable time after calving is what the average are considered to give.

In the event of buying food, if milk only is required it is better to buy grains than Swedes or other roots for feeding cows.

SCIENTIFIC MATING OF POULTRY.

While quite agreeing with your correspondent "C.," who wrote under the above heading on page 242, that as a rule show Dark Brahma cocks and hens are bred from different strains and by different methods of breeding, I must venture to add that one of the instances to which he points—viz., of my birds at the Paris Exhibition—is really an exception to the rule. The cock, one of the most successful show cocks in England, was bred from a show pullet, cup-winner at the Crystal Palace. This same cock, mated with one of these Paris hens, has bred stock of both sexes, which promise to make their mark in the show pen as adults; also the pullet exhibited by Mr. Clarke, and winner of the first prize at Oakham, 1878, was bred from one of my cockerel-breeding pens, and of my best cockerel-breeding blood on both sides.

I could give many other instances in my own yard if necessary. —L. Norris.

GUINEA FOWLS.

There is a time of year—late winter and early spring—when housekeepers are at their wit's end to provide variety for the table. Game is over; there is no lamb. Autumn-reared chickens are but sorry delicacies; and those of the preceding spring are, if cockerels, getting tough, if pullets laying. Guinea fowls where obtainable, now come in usefully. We know of no county save Norfolk where they are at all plentiful, and we seldom see them in private poultry establishments. We have had many of them ourselves, and have given them three separate trials, and will give our ideas as to the circumstances under which they can and under which they cannot be profitably kept. On the whole, our experience of them leads us not to wonder that they are not more generally bred; at the same time we believe there are many places where they could be kept with little trouble and at small cost, and would be found a great addition to the bill of fare.

Our first experience of them was in childhood. We had one pair given to us. The premises were large, the woods and paddocks

spacious, and they had unlimited range. In winter they took refuge in the poultry yard, and at times condescended to roost in a hen house. The cock occasionally pulled out a tail or two of the common fowls or a bunch of feathers, but this did not matter much, for they were not valuable birds. Early in March the Guinea fowls left the poultry yard, and only came back now and then for an occasional feed till the following autumn. From daybreak till after sunset they wandered in the woods and long grass and catered well for themselves; at night they roosted in a high sycamore not far from the house. The hen generally began laying about the 20th of March, and continued laying daily till the end of July, and then irregularly till Michaelmas. We soon, as children do, learned the habits of the birds. Quaint and interesting they are, and most elegant are their motions when in quest of insect food. The hen always laid about noon and while she was on the nest, which was generally scratched in a hedgebank or tuft of nettles, the cock watched quietly a few yards from her. As soon as she left the nest the pair would move off silently and rapidly, and spend most of the day in some other region, where the cock often screamed as if to distract attention from the real nest. If all the eggs were taken away, or too many at a time, the hen invariably forsook the nest and made another at a distance. She never successfully hatched a brood. Each year she became broody in July or August, but was always disturbed or forsook her nest before the time of hatching. Once another of our hens absented herself much earlier in a wet summer, and as the time of incubation expired was found sitting on thirty-two eggs in two layers, all spoilt by the wet or insufficient warmth. For several years this pair flourished and were doubtless most profitable. A few of the eggs were annually set under common hens. Guinea fowls pair, but after a while the experiment was tried of keeping a second hen. It was partially successful: the trio lived in harmony, excepting an occasional bickering between the hens, which both laid in the same nest, though not quite double the number of eggs that the one bird had before produced. The hens are certainly much more noisy when not properly paired. The birds were of the ordinary blue colour, or blue with white breasts; occasionally a very pale though not pure white bird appeared. At length they became extinct, we forget how. Years afterwards, when our poultry had advanced from a miscellaneous lot to an exhibition yard, we again tried Guinea fowls, this time pure white birds. A sitting of eggs was bought, which turned out well, and the chicks were particularly fine. Being, however, reared among the poultry runs they refused to roam about as our former race did, became incorrigible bullies, and after a year were eaten.

Once more we could not resist the temptation of trying the white breed. We had not the same unlimited range, though a large one; and among our poultry runs one of immense size, a whole copse with a bit of meadow and some dry heathy ground, was enclosed with high fencing. We bought a pair of fowls and kept them there. In this more domesticated state they began to lay earlier, but did not lay with anything like the regularity that our original wilder breed did. We bred them for three years; handsome vigorous birds they were, and carried off several first prizes. They roosted in fir trees, and their soft subdued notes heard occasionally during summer nights were by no means disagreeable. At last they became malicious, and after having pulled out the tails of various promising exhibition cockerels they had to share the fate of their predecessors. We never intend again to keep Guinea fowls under similar circumstances—*i.e.*, on premises of only moderate size and among yards of valuable prize poultry. To those, however, who have such a range as we once had, especially in a park where there are several lodges and gamekeepers' cottages, about which they can be kept apart from other poultry, we strongly recommend them, and will give our ideas about their proper management.

If a pair or two are bought care should be taken that they really are pairs. The wattles of the cock are larger than those of the hen, and he does not make her distinctive noise "come back." They should be kept in a shed for several days, or they will stray in all directions. If eggs are bought and set under common hens it must be remembered that the Guinea fowl sits twenty-six or twenty-eight days; as the chickens grow the hens should be cooped in wild places, not too near the house, or the foster chicks will grow up disinclined to wander and provide for themselves. There is a general idea that they are very delicate; this we have not found the case, and have seldom failed to rear every chick in summer. It is useless attempting to rear them late in the season; they are natives of a dry climate, and if not fledged before wintry weather sets in generally perish. They feather, however, very fast; the earliest eggs must be found, which will not be difficult, and set under common hens. The coops should be put on dusty dry ground if possible. For the first few days the chicks require feeding more frequently than other poultry; they delight in ants' eggs, and it is most amusing to see their extraordinary activity when an ants' nest is opened. At all times they are attractive little things, even in motion. The brood keeps closely packed, and will follow the hen which has reared them all through the winter, and, indeed, remains attached to her for life. If much looked after they become comparatively tame, and lay in nests provided for them; but we have never found them nearly so productive under these circumstances as in the wilder life which we have described. They are natives of sandy Africa, and suffer much in their feet by standing on cold damp ground. During severe frost they should be shut up in well-littered sheds, unless they betake themselves to the trees, where, strange to say, they seem able to resist any amount of cold.

The young birds come in for the table in the autumn, and continue tender and in season until the following March or April. We have found little difference in the varieties. We fancy the White birds do not lay so well as the Blue, though they are larger and more handsome; their coral crests contrast prettily with their pure white plumage, and with their faces of exquisitely soft kid-like white skin. The eggs of all the varieties alike are delicious. —C.

VARIETIES.

We are requested to state that a Committee meeting of the Poultry Club will be held at the Charing Cross Hotel on Tuesday, 22nd inst., at 11.30 A.M.

—— Another tournament of incubators is to be held at Hemel Hempstead in September. The machines are this time to be managed by their inventors or their agents. The prize for the most successful incubator is a gold medal, value £10.

—— American fanciers of poultry and Pigeons are determined not to be behind us. We have lately known of many large importations of poultry and Pigeons into America, both from this country and from Asia. We also understand that an English fancier was lately sounded as to whether he would undertake an expedition to judge at several American shows, but that he did not feel able to enter into so serious an engagement.

—— Mr. F. W. Burbidge, who has recently been collecting plants in Borneo, informs us that bees are largely kept by the natives, not, however, for the honey that they produce, but for the wax. The bees indeed store but little honey; they have no occasion, as they can obtain a supply from the flowers throughout the year. Many of the natives keep the hives, which are made of bark somewhat after the manner of the Arab hive figured on page 244, in their dwellings; the bees, however, not "mixing up" with the family, but having access to the hives by apertures in the roof. Other hives are placed beneath the overhanging eaves of the houses after the manner of swallows' nests in this country. The bees are greatly prized, few dwellings being found without one or more hives beneath the roof either inside or outside. The little honey that may be obtained from the hives is not nearly so good as the honey stored in this country.

—— The total number of animals imported into Great Britain from all countries in 1878 was as follows:—From European countries we received 163,049 cattle, 808,378 sheep, 87,648 swine; from Canada and the United States we received 86,439 cattle, 84,072 sheep, 17,958 swine; from the Channel Islands and other small countries we received less than 3000 head; while from Ireland we received 729,221 cattle, 642,999 sheep, 470,547 swine, making a total of 3,043,090 animals, against 2,958,441 in 1877. The value to Ireland of her connection with "the richest country in the world" is, says the *Daily Telegraph*, thus made plain, and the figures are altogether of a nature to reassure British landlords, especially when they read that, owing to the hardship of the transit from America and Canada to this country, the large number of 12,595 animals were sacrificed in one year, out of which animals 10,667 were thrown overboard, 1210 were landed dead, and 718 were so much injured or exhausted that they were killed at the place of landing.

—— Implements for the Kilburn Show.—Among the prizes offered are a gold medal and £50, offered by the Mansion House Committee for the best waggon for conveying perishable goods, meat, poultry, fish, &c., by railway, at a low temperature, a journey of 500 miles, the trucks to retain their contents at a temperature not exceeding 45° Fahr. for six days. Also several £50 prizes for plans of farm buildings—for arable farms above 300 acres, £50; for arable farms not exceeding 300 acres, £50; for dairy farms above 100 acres, £50; for dairy farms not exceeding 100 acres, £50. The plans, on a scale of 8 feet to the inch, with complete specifications and money bills of quantities, must be sent in, addressed to the Secretary, so as to reach 12, Hanover Square, on or before June 26th.

MODERN BEE MANAGEMENT.—No. 9.

QUEEN REARING.

It is of the greatest importance that the bee-keeper should know where to lay hands on a spare queen at any season, but more especially during the season in which stocks are being multiplied. When the matter of increase is left to Nature there is in every stock a period during which little or no breeding can go on, and this at a time when it is most required. The first swarm must build combs before the queen can lay eggs. The old stock will be without hatching brood for a period of from one to three weeks,

and the after swarms must wait for the fertilisation of the young queens and run the risk of their being lost on their courting days or remaining barren altogether. Such "management" is no management at all; and when one sees, some morning after swarming is over, the bodies of six or eight princesses cast forth, he can hardly fail to admit that there has been a waste of means somewhere. Either he or his bees must have blundered. Each of these dead princesses might have been saved to lay her two thousand eggs a day, and other stocks saved the trouble of raising a similar host for sacrifice. The fact is we cannot afford to leave this matter to Nature; it is man's province to improve Nature as he finds it.

I remember with what delight I adopted the hints in Pettigrew's "Handy Book on Bees" on the utilisation of royal cells taken from swarming stocks, and how I fancied I improved on his methods by carrying about my person such cells as were not immediately required, hatching them out by the heat of my own body, and having queens piping to each other in my trowsers' pocket. I fondled them and fed them for days, but they were only virgin queens after all, and the stocks to which they were introduced lost perhaps a week or fortnight of hatching. To be of full value it is evident we must have our spare queens fertilised before introducing them. This necessitates that in large apiaries there should be a queen nursery. About a month before queens will be required for swarming purposes, say for convenience the 1st of May, let us select our strongest stock and deprive it of its queen. Let us, then, get ready as many nucleus boxes as we may require, say eight or ten. Each of these is a small hive made to contain only three ordinary bar-frames. They may be very simple boxes indeed, provided they be dry and warm. Should queens of the ordinary type only be required, the stock rendered queenless should be examined on the 8th and the progress of the royal cells noted. The most backward ones had better be removed if we can spare them, in case they may have been started from brood too far advanced to produce good queens. The hive should again be closed and left till the 18th. Should we be desirous of breeding up to a particular standard of excellence we should on the 8th cut out all the royal cells in progress, and introduce a comb which has been for three or four days in the particular hive from which we wish to breed. Of course it is presumed that this comb contains plenty of eggs and newly hatched grubs. On it the bees will at once commence a second set of royal cells, which may be left till the twelfth day following, that is the 20th of May. In either case we shall suppose the day to have arrived. As all our stocks are intended to share in the benefit it will be but fair that each contribute towards the end in view. We carry around our nucleus boxes, each already supplied with two spare combs well furnished with very thin sugar syrup, and take a third comb containing plenty of hatching brood from any hive that can well spare it, with all its adhering bees, being careful not to take the queen. This comb is placed between the other two. In case the departure of old bees may leave it rather weak we shall further strengthen it by brushing off into it the bees from another comb of the same hive. Stocking in this way as many nuclei as we have royal cells for, we locate them just as if they were full stocks and graft into each one of the royal cells. These need little more attention till the 21st or 29th as the case may be—that is, twenty-one days after the royal cells are supposed to have been started. By this time, should the weather have been favourable, most of the young queens will be found laying. To return to the queenless stock. All the royal cells having been removed we insert a fresh comb of eggs from a selected hive, and on the twelfth or thirteenth day following repeat the whole process, continually removing laying queens from the nuclei and inserting royal cells in their stead. In this way successive batches of queens can be raised every twelve or thirteen days. Neither is the queenless stock greatly weakened, since it is never without hatching brood from the combs on which the royal cells are raised. The nuclei should, however, have a fresh comb of brood given to them every three weeks, and they will be found to grow stronger and be quite suitable for building up into full stocks after the season of queen-rearing is over. They may then either be strengthened by combs of brood from other hives or united two and two.

The above seems to me the simplest, most effective, and least expensive method of raising really good queens. Taking the average number of good royal cells at only eight, we can thus raise eighty queens in four months without very sensibly interfering with the strength of any of our stocks. By the use of a lamp nursery, into which the cells are put immediately they are sealed over, we may save one-third of the time and raise the number to 120 in a season. From the lamp nursery the princesses are removed as they hatch and introduced into the nuclei; but I have never tried this method, having doubts as to the constitutions of queens raised by artificial heat.

Should it be part of our plan to discover whether our young queens (supposing them to be Ligurians) have been purely mated, it will be necessary to leave them in the nuclei until their progeny decide the matter. This would render it necessary to uphold several sets of nuclei, and, considering the great uncertainty of obtaining pure fertilisation in this country and the reasonable cost of pure imported queens, I should decidedly say "the game is not worth the candle."—WILLIAM RAITT, *Beecroft, Blairgowrie.*

OUR LETTER BOX.

BARLEY FOR FOWLS (*T. Browne*).—Not knowing the variety of fowl, nor whether they are sitting or laying, we cannot quote the quantity they require.

POULTRY (*W.*).—To answer you fully would occupy too much of our columns. Our "Poultry Book for the Many" answers all your queries, and can be had from this office post free for 6½*d.*

CHICKENS DYING (*J. D.*).—We have carefully examined the two chickens sent. There was no food in the crop or the stomach, no remains of any. The liver was very much enlarged, and some of the digestive organs unnaturally developed. They present the appearance of birds that have been unnaturally fed with artificial and stimulating food. At the period of their death they had been fasting some time. They are well formed and strong chickens, but they cannot be reared by your present system. If you will adopt the following rules the mortality will cease, and you will have strong birds. At daybreak, some bread steeped in beer; next meal, some eggs boiled hard and chopped fine, then some ground oats mixed with milk, then scraps of meat or table sweepings chopped fine, a little bread and cheese, grits out of gruel. These may be varied as to the rotation, but the chickens should not go more than three hours without food while they are small. They should have beer to drink, and must be supplied with growing grass and fresh earth.

CHICKENS COUGHING (*S. W. F. R.*).—Give them daily a piece of camphor the size of a pea.

DAIRY FARMING (*Lancashire*).—If you are decided upon staying in England you have not sufficient capital to rent a dairy farm; but in case you understand the business you could rent a dairy. If you wish to do better, and with a large family like yours, you had better go to New Zealand or Queensland—anywhere if the Government offers a capitation grant of land; because in that case your numerous family, if brought up to work, may be a great advantage to you. Make application to the agents, and understand the matter.

GLUCOSE.—*Amelia* asks how this can be made or where purchased.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. April.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 9	29.428	48.8	43.9	W.	45.9	55.9	40.7	87.0	37.8	0.532
Th. 10	29.679	45.0	44.1	N.E.	45.6	47.0	41.6	53.6	42.4	0.049
Fri. 11	30.091	36.8	33.4	N.E.	43.4	44.2	32.8	101.2	28.0	—
Sat. 12	29.956	36.9	32.4	W.	41.8	41.5	26.8	76.2	24.7	0.372
Sun. 13	29.648	36.4	36.0	S.E.	37.4	47.2	31.9	68.2	31.9	—
Mo. 14	29.560	41.2	37.8	N.E.	40.4	47.8	32.2	81.6	30.3	0.245
Tu. 15	29.519	42.4	41.3	S.E.	40.4	55.4	36.4	92.6	33.1	0.279
Means	29.697	41.1	38.7		42.1	46.4	34.2	70.1	32.0	1.476

REMARKS.

9th.—Dull, cold, and cloudy; slight rain in evening, heavy at night.

10th.—Overcast and dull, high wind and cold; rain in afternoon and evening.

11th.—Bright and sunny but very cold; few flakes of snow at intervals.

12th.—Cold dull morning. Snow commenced at 1.15, fell thickly for several hours; rain with snow in evening.

13th.—Dull morning; slight snow on ground; cold but fine and bright after 11 A.M.; starlight evening.

14th.—Cold and dull, but dry until 1.30 P.M., then rain rest of the day; snow at intervals, very wet evening.

15th.—Dull foggy morning; cleared off by noon; fine afternoon with sunshine.

Bitterly cold in the middle of the week. Saturday the 12th of April had a mean temperature lower than that usually occurring on the 1st of January.—G. J. SYMONS.

COVENT GARDEN MARKET.—APRIL 16.

OUR Market still keeps quiet, the holidays not tending to improve business. The supply of late Grapes is quite equal to the demand, their full value not being realised. We have also received some good samples of new Grapes, prices for which are low.

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	2	0	to	4	0	Mushrooms	pottle	1	6	to	2	0
Asparagus	bundle	6	0		12	0	Mustard & Cress	punnet	0	2		0	0
Beans, Kidney	℔ 100	1	0		1	6	Onions	bushel	2	6		4	0
Beet, Red	dozen	1	0		2	0	pickling	quart	0	4		0	0
Broccoli	bundle	0	9		1	6	Parsley	doz. bunches	2	6		0	0
Brussels Sprouts	½ sieve	2	0		4	0	Parsnips	dozen	0	0		0	0
Cabbage	dozen	1	0		2	0	Peas	quart	0	0		0	0
Carrots	bunch	0	4		0	8	Potatoes, new	℔	0	6		1	6
Capsicums	℔ 100	1	6		2	0	Potatoes	bushel	3	6		4	0
Cauliflowers	dozen	3	0		6	0	Kidney	bushel	4	0		5	0
Celery	bundle	1	6		2	0	Radishes	doz. bunches	0	0		0	3
Coleworts	doz. bunches	2	0		4	0	Rhubarb	bundle	0	0		0	8
Cucumbers	each	0	6		1	0	Salsafy	bundle	0	9		1	0
Endive	dozen	1	0		2	0	Scorzonera	bundle	1	0		0	0
Fennel	bunch	0	3		0	0	Seakale	basket	2	6		3	0
Garlic	℔	0	4		0	0	Shallots	℔	0	3		0	0
Herbs	bunch	0	2		0	0	Spinach	bushel	2	6		4	0
Leeks	bunch	0	2		0	4	Turnips	bunch	0	2		0	4

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 24—30, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
24	TH	Royal Society at 8.30 P.M.	58.8	36.0	47.4	4 48	7 8	5 32	10 52	3	1 53	115
25	F	Quekett (Microscopical) at 8 P.M.	59.6	37.2	48.4	4 46	7 10	6 13	11 47	4	2 4	116
26	S	Sale of Camellias at 16, Wickham Road, Lewisham.	58.0	36.4	47.2	4 44	7 12	7 5	morn.	5	2 14	117
27	SUN	2 SUNDAY AFTER EASTER.	59.3	35.7	47.5	4 42	7 13	8 8	0 31	6	2 24	118
28	M	Royal Geographical Society at 8.30 P.M.	60.8	35.7	48.2	4 40	7 15	9 19	1 6	7	2 34	119
29	TU	Manchester Spring Show.	60.5	37.5	49.0	4 38	7 17	10 36	1 32	☽	2 42	120
30	W	Society of Arts at 8 P.M.	61.0	39.1	50.1	4 36	7 18	11 55	1 54	9	2 51	121

From observations taken near London during forty-three years, the average day temperature of the week is 59.7°; and its night temperature 36.8°.

MANAGEMENT: HINTS TO LEARNERS ONLY.

NO doubt there would be plenty of good gardeners if there were more good managers. To know how to grow plants, fruits, and vegetables is essential, but it is not all the knowledge that is required. It is possible, although not advisable, for a man who has tact for management to have the direction of a large gardening establishment without knowing much of the practical details of some of his multifarious duties, but it is not possible for one who is not a good manager to direct a large concern of any kind creditably, though he might be practically acquainted with every possible detail connected with it. All soldiers have not the capacity to become generals, and it is possible that management to a certain extent is a natural gift, but it is quite certain that much may be gained by cultivation, and the first lesson in management is, no doubt, to learn how to manage oneself; next I would place the management of those under us; and thirdly, what probably some people would place first, the management of the garden.

Now, the management of oneself and the management of those under our command are mixed together so intimately, that if we succeed in doing the first the other becomes very much simplified. But self-management has another aspect besides that which has to do with the workmen. There is often great and frequent provocation from unsympathetic employers, employers' friends and their children, as well as from servants, ranging from the scullery maid to the agent, with all of whom the gardener must keep on good terms if he would live in peace and have the most made of his produce. Self-control in the presence of employers is particularly to be insisted on.

A day or two previous to taking my position as head gardener, having the honour to count amongst my friends Mr. Tyerman, then of the Liverpool Botanic Gardens, I availed myself of the privilege to visit that gentleman, well knowing that I should obtain some kind and sound advice. I was not disappointed, for although not at all pedantic, he told me several things which made a lasting impression, and amongst them he mentioned the cases of one or two young men he had sent out as gardeners, and who had failed simply from the lack of self-control. One in particular he had given special advice to something in this way—"Now remember you are going to be gardener for Mr. So-and-so, you are not going to be gardener for yourself, therefore you must do your utmost to please your employer and his friends; their tastes may be altogether different to yours, they may be better or they may not be so good, that signifies nothing; you will be spending your employer's money, and your duty is to use your practical knowledge to carry out his wishes." The young man owned this was quite right, and promised to do his best to work according to the good advice offered. Not many weeks after, however, his old master met him with, "Well, how are you getting on?" "Oh, I am leaving, sir; the ladies came and cut the flowers themselves, spoiling my best plants. I could not stand that; I think," he added, "I slammed the door while they were in the conservatory." Poor fellow! he had forgotten the good advice, and he lost his situation through it, to be succeeded probably by a less competent man, but one who had more command of himself.

Of course it is very annoying to have plants spoiled which we have taken great care to train, and if employers would have their gardeners take an interest in their work they should be careful about hurting their feelings, remembering that it is the love of the pursuit and not the remuneration which keeps many of the best gardeners in their places, and that the skill which a successful gardener must of necessity possess could generally secure for him a more remunerative and easier if not such an interesting employment. Nevertheless it is the gardener's imperative duty to submit in all matters of taste; if employers do not want specimen plants their gardeners should not attempt to grow them, for they are very costly to grow and must often necessitate curtailment of expenses in other quarters. Cultural detail is a different thing; those who have the responsibility must have the direction in culture. It is the employer's part to say what is to be cultivated and what use is to be made of the produce, the gardener to work out the details of culture, &c., to the best of his ability, at the same time to be always open to receive a hint from anyone, especially an employer, whose education and facilities for observation are so much superior to his own that any theory put forward should always be treated with the greatest respect, and any experiment the employer might wish for should be carried out most faithfully, although it might appear at the time to the hearer to be an actual absurdity. It will be seen that I have been alluding to large establishments where the proprietor keeps a professional gardener and takes no responsibility himself.

There are some smaller well-managed gardens where the so-called gardener is merely the proprietor's foreman; in such cases of course the proprietor takes the responsibility just so far as he claims the direction. In others, again, the so-called gardener is merely a handy labourer, whose responsibility is smaller still; but gardeners all would do well to ponder on the severe rebuke "Mr. Punch" gave us a year or two ago, where he makes one proprietor say to another, "You keep a garden for your gardener, I keep a gardener for my garden."—WILLIAM TAYLOR.

NOTES ON FRUIT-GROWING.

EVERY amateur fruit-grower knows the value of a wall, whether odd corner or gable end, and it is for the purpose of showing how these spots may be rapidly and profitably covered that I direct attention to what may be called a free-and-easy fashion of training. Having a vacancy for a Pear tree on the house wall I applied to a friend for advice, to which he replied by sending a tree of Comte de Lamy, stating at the same time that this was *la crème de la crème* of Pears for Scotland. This was many years ago, and I believe his opinion to be substantially correct. After one year's growth the centre stem was cut back for wood, when

to my disappointment, the east side did not break, while the other side had fine shoots of 4½ feet each. Time is everything to an amateur, and to cut it back again was not to be thought of. I then formed the resolution that the leader should not at any time be stopped till it had reached the slates, and that the sides should run the chance of such branches as could be had with perhaps a bud or graft inserted where necessary. I was not disappointed. In four years the tree was at the top of the wall, while the sides were completely covered; only two vacancies had to be filled by budding, and many a time I have heard the remark, "What a handsome tree!" The fine central stem, straight as a salmon rod, has quite a different appearance from those trees annually cut back. Perhaps this plan may be old, but I never saw nor heard of any other tree so trained. The plan may be too simple to commend itself to any except an enthusiast, but it certainly covers a wall quickly, and that is just what is required on gable ends of high buildings.

The Pear election does not look promising, and this is not to be wondered at. Fair lists of fruits have been published by the horticultural papers for many years, and unless some distinct advance can be made it would be better to leave it alone, and let amateurs trust to their neighbours and the "Fruit Manual," until such time as a vigorous and determined effort can be made to attain the object in view, for no "trouble" must be spared in the attempt. In the long line from Truro to Thurso it may be safely assumed that every sheltered nook is capable of producing its Apples and Pears, and it would be very interesting to note where some varieties leave off and others begin. Here for instance, in Fife, the Devonshire Pears of Mr. Huyshe dry up into worthless scrubs, and the good old Hessle reigns supreme. After the great glut of October and November Pears it is singular how soon the supply shortens, although Christmas is really the centre of the Pear season, for late Pears can usually be had till May. To have late Pears those in cool climates must grow the trees under glass, and even for late Pears I should not like to be confined to twelve sorts, which number I have for Easter, although Bergamotte Esperen is not one of them, that variety not having a single fruit last year.

I am afraid that my experimenting proclivities are too pronounced to admit of growing any one approved sort in quantities, at least not yet; but I must confess to a weakness for Winter Nelis, and would multiply the trees considerably on slight inducement. A little heat makes it good at Christmas, or even before, and it is as good now as need be wished; in fact, it is in eating for four months, and is always good. What other Pear can approach it? Olivier de Serres is as plump as when pulled from the tree, and will probably keep for several weeks; but this has been an exceptionally good winter for keeping Pears. With the exception of Winter Nelis my Pears are slightly undersized this year. These were grown under glass (see *Journal of Horticulture*, December 5th, 1867). Some of the large winter Pears succeed admirably when grown as there described; such as Maréchal de Cour, Doyenné du Comice, Van Mons Léon le Clerc, and Pitmaston Duchess, while some, such as Beurré Diel, Easter Beurré, Passe Colmar, and many others are worthless. Early Pears, as a rule, are not good under glass, the flavour appears to be completely extracted.

Although a nineteen-years subscriber I have not often troubled the Journal, and shall now wind up by giving a slight experience of Beurré Diel, a Pear which in my time has about touched every step on the ladder. It is said to be good at only one place in Fife, and the anathemas of indignant purchasers might frighten it out of that chosen retreat. I have, however, tasted it good at other places, and here it was good from a wall until a few years ago, when my increasing requirements induced me to clear out an old coal cellar to hold fruit. From that time I have never been able to mature Beurré Diel, nor Beurré Chairgeau, nor Durondeau if taken to that cellar. All my other varieties keep admirably in that place, but it would seem as if the cold cellar so completely put a stop to the process of maturation in these particular varieties that they had to go to sleep, from which they could not afterwards be aroused by any application of heat, remaining worthless to the end. When brought to the house immediately after being pulled they ripened as usual after having extra heat. My contention is, and the Journal proves it, that there is more in the pulling and subsequent attention to the maturation of many Pears than in the mere growing of them. In cool climates such as this only a few of the very early Pears may be gathered early, and then only in a good season; all others require the last hour on the tree. Even in the last good season some Beurré Diel Pears pulled on the 28th September failed to ripen, whereas those pulled on the 12th October were very fine.

In this neighbourhood there has been only one really good crop of fruit out of doors in the last seven years. Good Pears were scarce, and I daresay we enjoyed ours the more on that account. Outside there was one brilliant exception to the general desolation. In 1872—when all the Apple and Pear blooms were killed, and the trees nearly so—a standard Victoria Plum tree faced out the frost and the bitter east winds, and produced such a crop that several branches broke with the weight of fruit, although propped all round. Every year that tree carries a crop, proving incontestably the superior hardihood of some Plums, a fact which does not appear to be generally known. My trees are now numerous.

Another great acquisition is Nelson's Glory Apple [Nelson Codlin?]. If Apples are to be had they will be on that standard tree; and as the weight runs from 8 to 14 ozs., and not easily blown off, they are valuable.

Olivier de Serres Pear from a wall tree is in very fine form at the present time, and I think will prove a very hardy and valuable late Pear. From wall and glass it is quite plump, and will probably keep a long time.

That Plum, that Apple, and that Pear I would recommend to the favourable notice of amateurs who grow fruit in cool climates.—N., *Fife*.

[You might "trouble the Journal" more frequently to the advantage of its readers.—EDS.]

ROSES IN THE MIDLANDS.

I DID not see "WYLD SAVAGE'S" disheartening letter in your issue of the 27th of March, but I have read the letters in answer to "WYLD SAVAGE" signed by R. W. Beachey and "CURATE OF HOWDEN," the former representing the south-west and the latter the north-east of England. Mr. Beachey writes about the fury of the east and north-east winds, and afterwards confesses that he registered but 14° of frost on his coldest night. "CURATE OF HOWDEN" does not give us the result of his meteorological observations, but we may assume that 14° of frost would be but a flea-bite and hardly a frost-bite in Yorkshire last January, and yet he says that his Hybrid Perpetuals have come through the winter bravely.

Now in my garden in North Worcestershire, only six miles from Birmingham, I registered more than once 27° of frost, and once 29°. I, too, am situated on the top of a hill exposed to the fury of the east and north-east winds, and yet I have lost but one Rose tree, and that a standard, and that a Tea Rose, and withal a Climbing Devoniensis. I have but about fifty Tea Roses, but with the exception of two or three all are budded either on the seedling Briar or the Grifferaie stock. Three miles from here, in a comparatively warm valley, a large nurseryman has lost nearly all his Tea Roses, all of which were on the Manetti, and yet he protected them more than I did mine.

I have not lost one Hybrid Perpetual, but on two of my beds every plant of Duke of Edinburgh and Général Jacqueminot have been cut down to within an inch or two of the ground; and yet their immediate neighbours, Emilie Hausburg, Miss Ingram, La France, Xavier Olibo, and Capitaine Christy, have not shown any signs of having gone through the ordeal of a most severe winter; and there is no difference as regards stocks in the above-mentioned—all are on the Manetti. Perhaps some of your readers can explain.—A FREQUENT SUBSCRIBER.

SPRING CUCUMBERS.

MANY plants under glass are much the same as those in the kitchen garden this spring—slow in starting into growth, and long in coming to maturity. Had January and February been favourable we should have cut Cucumbers about the end of the latter month, but as we grow our Cucumbers in a pit where the heating power is barely sufficient to keep the inside temperature 10° above the outside, we did not cut our first fruit from spring plants until the first week in April. Now (April 15th) we have abundance, and as usual the one which has outstripped all other varieties both in number of fruit and in earliness is Telegraph. We have tried many varieties, but never found one to equal this, and now, with the exception of a few new varieties on trial, we shall grow no other. Since our Cucumbers were planted they have been grown throughout in quite 20° less heat than that recommended in the gene-

rality of calendars. A temperature of 45° in the morning has been nothing unusual in the Cucumber pit, and yet the plants are in excellent health.—A KITCHEN GARDENER.

WHAT BOILER SHALL WE USE?

I DO not know anything that gardeners and amateurs are more interested in than the subject of boilers, and a great many are entirely guided by what they read in the papers on such matters. This is my apology for intruding upon your space to say a word for our old and tried friend the saddle boiler, of which I think the communication from your correspondents, Messrs. E. G. Henderson & Son, is likely to convey an erroneous impression.

It surprises me very much to learn that the saddle boilers put down first to heat the houses at Pine-Apple Place could not heat the water in the pipes, if the boilers were anything like adequate to the extent of piping to be heated. If they were not, no fault could be attached to the boilers; but on this and other points your correspondents' account is far too vague to afford any information. If we had been told the quantity of piping to be heated, and the capacities of the boilers in both cases, we could have judged of the comparative merits of the tubular and saddle boilers, but the data furnished does not enable anyone even to guess at the matter: 45,000 feet of glass, an indefinite quantity of piping, and boilers the heating power of which is not given, are statements that convey no real information to anybody, and far less do they warrant anyone in praising one boiler at the expense of another.

My own opinion and the opinion of a great number of gardeners is, that the common saddle boiler set in firebrick cannot be surpassed by any other form at present in existence, and I doubt very much if any manufacturer would stake the reputation of his boilers, tubular or others, on a fair trial against a saddle in the hands of a good stoker.

It may be necessary, when a great extent of piping has to be heated, to have more than one saddle—an arrangement which is quite easy and more convenient than the one-boiler system. After what I have seen I would not on any account allow the heating of a range of glass houses full of valuable plants to depend on one boiler. Some years ago a noted hothouse builder erected a very extensive range of glass in this county for a nobleman, and persuaded him to have a gigantic tubular boiler put in. This cost, I believe, over £100, setting and all, and it gave way completely in about four years just in the middle of the forcing season, to the great loss of the proprietor and the distress of the gardener. The nobleman wrote to the manufacturer a rather strong letter, which brought the latter down from London, and after a pretended investigation he threw the blame on the head gardener, but was not believed. The boiler failed when all was in order, only the weather was rather severe at the time and the boiler was taxed to do work for which ample power was supposed to be allowed. It was replaced by three saddles which for years have done the work admirably and more cheaply than the tubular, with power to spare, and the three cost less than the one tubular. I was told not many weeks ago by a well-known ironfounder who has no particular boiler of his own, but who makes or sells such as please his customers, that he sold about twenty saddle boilers for one of any other form.—AN OLD STOKER.

EFFECTS OF THE WINTER IN THE NORTH.

HAVING recently been in Yorkshire I took the opportunity of observing the effects of the severe weather there as contrasted with Dorsetshire. I was under the impression that we had suffered as much as anyone, but I was mistaken. In the north common Laurels are much injured. All the young shoots are killed and the shrubs look most sickly. Such Conifers as Cupressus Lawsoniana have been killed. My brother has a beautiful collection of Japanese and dwarf Conifers. These are all so injured that many will scarcely recover. My brother is also an ardent rosarian and has a fine span-roofed house for growing Tea Roses. He has tried to grow them in the open air as well, and to do this with a greater chance of success he has adopted Mr. George Paul's plan as recommended in his catalogue. He has erected a line of posts and transverse beams in the shape of a rude span-roofed house, and over these he has placed large shutters covered with heavy matting. A more perfect shelter out of doors cannot be imagined, but in spite of his care nearly all the Teas are dead, or at least killed down to the ground. The only plants in which I can find any signs of life are such hardy and vigorous growers as Belle Lyonnaise, Gloire de Dijon, and other similar varieties of the same family. Mr. Paul was anxious to know how the system answered in these gardens, and I regret to have to give so discouraging a report on his system.

With regard to Mr. Beachey's remarks on late pruning—I am writing this on the 7th April, and not one Rose tree here is pruned, and my brother has no intention of pruning till the end of this month. His experience of spring frosts and the injury they do to pruned Roses does not correspond with that of Mr. Beachey. He grows very good Roses, all things considered, and his plants are stronger than any I ever grew. How, too, does the pruning of Tea Roses bear out Mr. Beachey's dictum? In Dorset we never prune Tea Roses until April, and they are as a rule more forward than the Hybrid Perpetuals, and yet the Teas do very well with me.—WYLD SAVAGE.

FRUIT PROSPECTS.

SURELY my excellent friend Mr. Witherspoon was low-spirited when he wrote his article on this subject at page 272. I had several opportunities in the early part of the year of seeing his place, and also of examining the trees which he then had doubts about; but I certainly never expected that affairs would be so bad as they have since turned out. I was at first inclined to be sceptical and to ridicule the idea of the wood of Pear tree spurs being killed by any frost, however severe; but a close examination certainly showed that matters were not right at the core, the pithy interior of the spurs being of an unnatural colour. This induced me to examine every tree wherever the opportunity occurred. The results varied greatly; but in no case was the blackened core so uniformly met with as in Mr. Witherspoon's place, and in a garden where I have been there are no signs of it. We have some fine Pear trees on walls here, and many of the spurs are in the same condition as Mr. Witherspoon's, while others seem to be quite sound; so we must patiently and hopefully await the result.

We are situate in the extreme north-east of the County Palatine, and within seven or eight miles of the shores of the German Ocean. The east winds are laden with saline matter, and the north winds are heavily charged with alkali from the chemical factories on the Tyne, about a couple of miles from us. The remark just made about Pears applies to Apples on walls, also to early Cherries; but in the open orchard and the garden the prospects of a glorious fruit year could not be better. Our Peaches on the south wall are crowded with bloom buds which are ready to burst, but the cold weather is effectually retarding them. At the time of writing (Easter) the ground is covered with snow to a depth of 2 inches, and the thermometer registered 5° of frost at six this morning, with a stiff nor'easter blowing.

These spells of hard weather — of which we are having periodical visitations—while retarding the opening of the fruit blossoms are also most effectually stopping every other kind of vegetation. There is scarcely a flower to be seen out of doors, and Wallflowers which stood the winter bravely succumbed in the last week of March—a week which tested the hardihood of everything, coming in suddenly after nine or ten days of fine spring-like weather. Let us hope, then, that our worthy friend—for whose opinion I have the greatest respect—is astray in his judgment, this time at least; and that in spite of all present appearances we shall have a general good crop of high-class fruit.—PETER FERGUSON, *Co. Durham.*

HARDY VARIETIES OF BROCCOLI.

I ENTIRELY agree with all that has been said by Mr. Jones, Cheshire, on page 247, under this heading. In confirmation of what he points out as the doubtful advantage of heavy manuring for Broccoli intended to stand the winter the following details may be of use to those who, like myself, are still unable to sow, owing to the continued wet:—

1, Planted on land richly manured as seed beds in April. Snow's Winter White, planted 18, now alive 5; Leamington, planted 32, alive 18; Cattell's Eclipse, planted 54, alive 25.

2, Planted on land manured nine months before, and cropped between with Peas or Potatoes. Snow's Winter White, planted 28, now alive 18; Leamington, planted 18, alive 15; Cattell's Eclipse, planted 20, alive 12.

From the above it appears that in No. 1 only 47 survived

out of 104; whilst in No. 2, where the growth was less vigorous, 45 lived out of 66, and are besides much the best-looking plants.

On the whole one-half of the Snow's Winter White and Cattell's Eclipse have perished, and only a quarter of the Leamington.—A YORKSHIRE CURATE, *East Riding*.

FOOTPRINTS OF THE FROST—ROSE REPORTS.

"A. C." in the Journal of the 3rd inst. wishes to know where and how far Roses have resisted the frost.

Of wall Roses in a small collection in an exposed position (Lincolnshire), Gloire de Dijon, Maréchal Niel, Climbing Devoniensis, a very rampant and free-flowering tree at the top, but bare and unsightly below, and Rêve d'Or are shooting strongly. Of Tea Roses in the open Céline Forestier (standard) looks well. Several very vigorous Teas have entirely or partially perished, including Catherine Mermet, Comte de Paris, Souvenir d'Elise Vardon, Souvenir d'un Ami, and Madame Willermoz; while of a few Teas newly planted in autumn only one death, Lamarque, has to be noted, thus proving the truth of an observation of a correspondent in a recent number of the Journal, that old wood suffered more severely, being less elastic to the action of frosts than younger growths. Three plants of Niphetos, one each of Ophirie, Madame Falcot, Triomphe de Rennes, Perle des Jardins, Marie Van Houtte, all newly planted in autumn, seem healthy. On the Manetti dwarf Hybrid Perpetuals are promising.

Amongst the old standards are several deaths, and some look weakly. Much to my regret I often lose a Reynolds Hole. Again last autumn I put in duplicates, and one only is living—the dwarf. How long should standard Rose trees last, if originally healthy, in vigorous flower and foliage? The bulk of mine are about five years old and the soil adverse, still I have some good heads. A neighbour's Rose trees must be at least sixteen or seventeen years old; they never seem to renew them. They make a grand line along a sheltered border, but they have rich loam to live in and unlimited artificial assistance.

One or two plants of Primula japonica, which yielded rich spikes of castellated magenta blooms—three tiers I think—last year in the open border, look fairly well, though they were improperly moved about too much in autumn.—A. M. B.

BIRDS AND GOOSEBERRY BUDS.

THE case of "WILTSHIRE RECTOR" (page 210) is by no means a solitary one, for the same thing has happened here. The Gooseberry and Currant bushes were purposely left unpruned with a view to saving some of the buds; but the experiment has resulted in failure, for nearly every bud has been taken except those on the very tips of the branches, on which the birds could not balance themselves, and many of the shoots will have to be cut hard back. In some cases the threading system has been tried, but this season it has not proved satisfactory, for the birds when pressed by hunger have made their way up into the bushes from the under side. Year after year to some extent this has been the case, and is only one of the many difficulties a gardener has to contend with. In this locality the birds are so numerous that if they do not take the bloom buds they take the fruit, unless it is protected or gathered in a green state; but where game is preserved the natural enemies of the birds are destroyed. I have not had a bird shot for the last three years until this spring, but now I have declared war against the bullfinch in particular; but I must say that the bullfinch is not alone as a bud eater, for I think the common house sparrow is quite as bad—perhaps not individually, but because they are so numerous.

I had a quarter of Gooseberry bushes cut hard down last spring which had made good heads, but nearly every bud has been taken, so that they will have to be cut hard back again. I have now come to the conclusion that the only safe way to grow common bush fruit is to plant thickly, leaving blank spaces at intervals for the sake of convenience, gathering the fruit and netting the bushes over. Do the netting early in the season, for when once the buds begin to swell the work of destruction is done in a very short time.

If this plan is adopted, and the pruning delayed until the bushes are green—as Gooseberries may be pruned with impunity at such a stage—hoops of green hazel or other pliable wood might be bent over the bushes to support the nets. Some of the long shoots will of course have a tendency to keep the nets from pressing too closely, the hoops to be left until the fruit begins to ripen, as at that time the blackbirds, thrushes, and sparrows are great thieves and must be guarded against; and we can seldom keep either Gooseberries or Currants without protection after they show signs of colouring.

Later on come a host of bluebottles, flies, wasps, and hornets, the latter being rather numerous about here. Sparrows, hawfinches, and jackdaws are very fond of young Peas, and last spring the birds nearly cleared a quarter of early Peas before they were fit for table use; and I was somewhat puzzled to account for the wholesale manner in which they were taken. I had accused rats of taking them, and had set traps, in one of which we caught a fine old jackdaw. This had a deterring effect, as the Peas did not disappear so fast afterwards. Wood pigeons are great garden robbers in spring. All these depredations take place early in the morning before the workmen are about. In the autumn came the tits and spoiled numbers of Pears: others we were obliged to gather before they were ripe, and many of them shrivelled.—G. R. ALLIS, *Old Warden*.

FUMIGATING.

I BEG to submit to your smoke-poisoned inquirer "S. A. Y.," page 247, an easy and cheap method of fumigating in safety. Have a 6-inch flower pot resting on an old gridiron, or two or three pieces of iron rod on the top of two herring boxes or

Fig. 44.

bricks the height you want, leaving space between for a candlestick, and place your apparatus near the door; fill the pot with tobacco paper torn in pieces half the size of your hand, do not press it too firmly, place a lighted candle close to the hole in the pot, and the work is done for a house 14 feet by 12. You can open the door to take out the candle, or you can leave it to burn out. I append an illustrative sketch of the method, which I adopt successfully.—W. R. F., *Amateur, Otley*.

[The plan appears to possess novelty, simplicity, and originality; and for the benefit of amateurs having small houses we have had the sketch engraved.—EDS.]

FORCING STRAWBERRIES.

MANY gardeners who force Strawberries in spring appear to be in favour of placing the pots in saucers during the time the plants are being forced. Some only place the pots in the empty saucers, others in saucers filled with rich soil into which the roots are supposed to penetrate and derive much nourishment. We have tried both of these plans this spring, also growing the plants without saucers, and the latter proved the most satisfactory. The fruit on the plants placed in the saucers were no larger, if so large, as on the plants without saucers, while the last-named fruits were the best flavoured

I think the only advantage in the use of saucers is, that the plants do not require attending to so often in watering; but I think it is through the water being constantly held about the roots that the flavour is deficient and the plants sickly. When the pots are not in saucers if the plants are looked over in watering twice a day, and watered thoroughly when required, they will be found to thrive amazingly, and if a little liquid manure is given three or four times a week when the fruits are swelling they will develope to perfection.—M.

ROSE SHOW FIXTURES.

HAVING received from the Secretaries of the Brockham and Oxford Rose Societies the dates of their shows I now give a revised and complete list as far as I know:—

Royal Horticultural Society	Tuesday, June 24th.
*Norwich	Wednesday, June 25th.
*Maidstone	Thursday, June 26th.
*Brockham	Thursday, June 26th.
National Rose Society (Crystal Palace)	Saturday, June 28th.
Horsham	Tuesday, July 1st.
Reigate	Wednesday, July 2nd.
*West of England (Hereford)	Wednesday, July 2nd.
*Canterbury	Thursday, July 3rd.
Shrewsbury	Thursday, July 3rd.
Oxford	Thursday, July 3rd.
Alexandra Palace	Saturday, July 5th.
Ludlow	Thursday, July 10th.
National Rose Society (Manchester)	Saturday, July 12th.
*Leek	Tuesday, July 15th.
*Newton Stewart	Thursday, July 17th.
Helensburgh	Friday, July 18th.

At those marked (*) the medals of the National Rose Society are to be competed for. It is a great pity some of these dates cannot be altered. Why could not Brockham be on the 27th (Maidstone was fixed long ago)? There are three on July 3rd, and none on the 4th, or 7th, 8th, or 9th.—D., *Deal.*

ROYAL HORTICULTURAL SOCIETY.

APRIL 22ND.

NEVER before, this season, has the conservatory presented such a gay and animated appearance as on this occasion. Besides the southern section of the National Auricula Society's Show, which was the leading feature, the principal nurserymen staged collections of plants of considerable extent and exceptional merit. Messrs. Cutbush's fine group of Azaleas, Epacrises, &c.; Mr. B. S. Williams's rich group of flowering and foliage plants; Messrs. W. Paul and Son's Roses, both in pots and cut blooms arranged in boxes; Mr. G. Paul's grand specimens of pot Roses; Messrs. Veitch's Roses (smaller plants, but in splendid condition), and various other plants; Mr. Bull's rich collection of Orchids; Messrs. Lee's excellent display of flowering and foliage plants; Messrs. Barr and Sugden's gay collection of Narcissuses; Mr. Cannell's brilliant boxes of Zonal Pelargoniums; Mr. Pestridge's Tricolors; Capt. Patten's Hyacinths and Tulips; and splendidly grown Azaleas from Chiswick, occupied with imposing effect the whole of one side and both ends of the building, the Auriculas being staged on tables arranged nearly the entire length of the opposite side of the structure, the whole producing a display at once varied, brilliant, and unique; a display, too, that was largely patronised and apparently greatly appreciated, for during the afternoon the Exhibition was densely crowded with visitors, who examined with great interest the several plants composing the collections. The Auriculas were a great attraction, Mr. Horner's premier group and Mr. Turner's Alpines receiving the lion's share of attention. Such was the general character of the Exhibition, of which we now give a more detailed description, commencing with the

AURICULA SHOW.

Of this Show one who has witnessed as many exhibitions of the kind as almost any living florist writes as follows:—Those who grow Auriculas and have been watching their condition during the last few weeks might well have wondered in what numbers or state they would be brought forward at the exhibition day. Never amidst all the exceptional seasons I have known as an Auricula grower have I experienced such a one as this; and those who looked out on Easter-day and saw 6 inches of snow on the ground would probably feel that it was well-nigh a hopeless task to expect their flowers to be in, or, if in, to be in their best form for the tournament. That so fine a Show was provided evidences that the old method of growing the plants in frames without heat has been discarded, and that they were not seen in the refinement and evenness of character which marks them so specially was only what was to be expected. That it was a good Show none can question; that it was not equal to last year's is, I think, equally certain. Some of the classes were not so well filled, and the general quality of the flowers exhibited unevenness and in some instances coarseness, while the length of footstalk in some and their large drawn-looking foliage bore witness to the fact that they had been subjected to high pressure to get them in.

In consequence of the lateness of the season some of the early-blooming flowers, such as Taylor's Glory, which were absent last year from the Palace, were seen to-day; and that such flowers as Lancashire Hero, which are generally late, were not seen in any number or of high quality except in a few instances. George Lightbody was hardly himself, except in the case of one plant in Mr. Horner's twelve, which I looked upon as the premier bloom in the Show (I had to leave before this was decided). Another flower which was well shown last year was not in character—Alexander Meiklejohn; and my opinion with regard to Prince of Greens was not shaken by what I saw of it, although Mr. Horner had it very good. Frank Simonite, John Simonite, and Anna were amongst the rarer kinds. I did not see a bloom of Colonel Taylor, but Mr. Horner had a very fine bloom of Booth's Freedom on a plant displaying unusual vigour: the breezes that sweep over Kirkby Malzeard must be laden with health to Auriculas. The same exhibitor had a very beautiful self called Ringdove, a lovely dark purple, as flat as could be, with an even circular paste and good tube. Mr. Simonite, who has again triumphed over the murky atmosphere of Sheffield, had a promising seedling green-edge, somewhat in the style of Prince of Greens, but with a more lasting tube.

The arrangements were far more satisfactory than at the Crystal Palace, and the Show was a very successful one.—D., *Deal.*

After the above critique we have little to add beyond the awards of the Judges, and to note the varieties which enabled the exhibitors to share in the honours of the day.

In Class A, for twelve dissimilar Auriculas, four collections were staged. The Rev. F. D. Horner, Kirkby Malzeard, Ripon, was first with Simonite's Frank Simonite, Horner's Ajax, Horner's Erebus, Headly's George Lightbody, Walker's John Simonite, Campbell's Pizarro, Lancashire Hero, Horner's Sapphire, Heap's Smiling Beauty, Traill's Prince of Greens, Page's Champion. F. Whitbourn, Esq., Loxford Hall, Ilford (Mr. James Douglas, gardener), was second with Kaye's Alexander Meiklejohn, Lancashire's Lancashire Hero, Kaye's Topsy, Traill's Beauty, Lee's Colonel Taylor, Campbell's Admiral Napier, Taylor's Glory, Heap's Smiling Beauty, Lightbody's Meteor Flag, Headly's George Lightbody, Hepworth's True Briton, and Marquis of Lorne. Mr. Benjamin Simonite, Rough Bank, Sheffield, was third with William Bradshaw, Samuel Barlow, Frank Simonite, Spalding's Metropolitan, Richard Gorton, Prince of Greens, Lancashire Hero, Ajax, George Lightbody, Charles Perry, John Waterston, and a seedling. The fourth prize went to Mr. Charles Turner, Slough, for Turner's Mrs. Purvis, Jeffrey's Sir H. Havelock, Turner's Charles J. Perry, Turner's Peacemaker, Traill's General Neill, Turner's Colonel Champneys, Campbell's Pizarro, Moore's Violet, Turner's Memnon, Headly's Arabella, and Turner's Clipper.

In Class B, for six dissimilar varieties, there were five collections. The Rev. F. D. Horner was first with Headly's George Lightbody, Lancashire's Lancashire Hero, Traill's Prince of Greens, Read's Ruby, Heap's Smiling Beauty, and Summerscale's Catharina. Mr. B. Simonite was second with Richard Gorton, George Lightbody, Spalding's Metropolitan, Prince of Greens, Frank Simonite, and a seedling. The third prize went to Mr. Douglas for Campbell's Admiral Napier, Kaye's Alexander Meiklejohn, Kaye's Topsy, Cunningham's John Waterston, Campbell's Pizarro, and Heap's Smiling Beauty. Mr. Charles Turner was fourth with Turner's Charles J. Perry, Cunningham's St. Augustine, Turner's Omega, Martin's Mrs. Sturrock, Turner's Col. Champneys, and Turner's Seedling. J. T. D. Llewelyn, Esq., was fifth with Turner's Charles J. Perry, Kaye's Topsy, Campbell's Lord Lorne, Turner's Colonel Champneys, Dickson's Earl of Errol, and a seedling.

In Class C, for four dissimilar varieties, the Rev. F. D. Horner was first with Lancashire Hero, Walker's John Simonite, and Horner's Ringdove, a grand new self. The second prize went to Mr. B. Simonite for Frank Simonite, G. Lightbody, Col. Taylor, and a seedling. Mr. Douglas was third with Oliver's Lovely Ann, Headly's G. Lightbody, Kaye's Topsy, and Lee's Earl Grosvenor. Mr. Charles Turner was fourth with Turner's Clipper, Turner's Seedling, Colonel Champneys, and Martin's Mrs. Sturrock. Mr. R. Dean, Ealing, was fifth with Dickson's Duke of Cambridge, Turner's Chas. J. Perry, Lightbody's Robert Traill, and Campbell's Lord of Lorne. J. D. T. Llewelyn, Esq., was sixth with Summerscale's Catharina, Headly's Alderman Wisbey, Turner's Colonel Champneys, and a seedling.

In Class D, for two dissimilar varieties, the first prize went to the Rev. F. D. Horner for Lancashire Hero and Smiling Beauty; the second to Mr. B. Simonite for Onwards and G. Lightbody; the third to Mr. Douglas for Heap's Smiling Beauty and Headly's G. Lightbody; the fourth to T. E. Lloyd, Esq., Bedford Villa, Woodford, for General Neill and Lord of Lorne; the fifth to Mr. Charles Turner for Turner's Charles J. Perry and Turner's Col. Champneys. J. T. D. Llewelyn, Esq., was sixth with Inspector and Turner's Charles J. Perry.

In Class E, for a single specimen of a green-edged variety, the Rev. F. D. Horner was first with Traill's Anna, and sixth with the same variety. J. T. D. Llewelyn, Esq., was second with Smith's

Lycurgus. Mr. Douglas was third with Gain's Lady Richardson, and seventh with Beeston's Apollo. Mr. B. Simonite was fourth with Talisman, fifth with Anna, and eighth with Prince of Greens.

In Class F, for a single specimen grey-edged, the Rev. F. D. Horner was first and second with Lancashire Hero, third with Samuel Barlow, and seventh with Headly's George Lightbody. Mr. Douglas was fourth and fifth with Headly's George Lightbody, sixth with Kaye's Alexander Meiklejohn, and eighth with Headly's Alderman C. Brown.

In Class G, for a single specimen white-edged, the Rev. F. D. Horner was first with Ann Smith, third with Walker's John Simonite, fifth with Heap's Smiling Beauty, and sixth with Ann Smith. Mr. Douglas was second and eighth with Smith's Ann Smith, and fourth with Taylor's Glory; Mr. B. Simonite being seventh with Frank Simonite.

In Class H, for single specimen selfs, the Rev. F. D. Horner was first with Campbell's Pizarro, and fifth with Spalding's Metropolitan. Mr. Douglas was second with Campbell's Lord of Lorne and fourth with the same variety. T. Lloyd, Esq., was third with Lord of Lorne, Mr. Dean sixth with Pizarro, Mr. Douglas seventh with Kaye's Topsy, and eighth with Sims' Eliza.

In Class I, fifty plants, not less than twenty varieties, Mr. Douglas was first with Kaye's Alexander Meiklejohn, Taylor's Glory, Turner's Col. Champneys, Campbell's Lord Lorne, Lady Sophia Dumaresque, Chapman's Maria, Traill's Beauty, Lancashire's Lancashire Hero, Headly's George Lightbody, Campbell's Pizarro, Spalding's Metropolitan, Campbell's Confidence, Hepworth's True Briton, Smith's Ann Smith, Campbell's Green-edge, Oliver's Lovely Anne, Cunningham's John Waterston, Smith's Mrs. Smith, Lady Sale, Smith's Formosa, Gain's Lady Richardson, Headly's Alderman C. Brown, Kaye's Topsy, Lightbody's Robert Traill, Smith's Lovely Ann, Syke's Complete, Lightbody's Meteor Flag, Lightbody's Lady Clyde, Campbell's Admiral Napier, Ashton's Prince of Wales, and Sims' Vulcan. Mr. Charles Turner was second with very good plants, the most noteworthy varieties being Turner's Charles J. Perry, Turner's Prince Alfred, Turner's Calypso, Turner's Royal Robe, Turner's Clipper, and Traill's Lady Ann Wilbraham. J. T. D. Llewelyn, Esq., took third prize with good plants, but generally smaller than the preceding. Mr. Dean was fourth.

In Class K, for twelve dissimilar Alpine Auriculas, Mr. Charles Turner was first with Dr. Denny very fine, Sensation, Selina, Evening Star, Miss Taplin, Prima Donna, Unique, Mrs. Llewelyn, Mrs. Carter, Troubadour, and Slough Rival, all his own raising; the remaining plant being Gorton's Diadem. Mr. Douglas was second with Meiklejohn's Mrs. Meiklejohn, Douglas's Seedling, Miss Reid, Gorton's Diadem, Turner's Selina, Gorton's George Lightbody, Douglas's Prince, Turner's Beatrice, Douglas's Silvia, and Douglas's Florence. Mr. R. Dean was awarded the third prize.

In Class L, for six dissimilar Alpines, Mr. Charles Turner was first with King of the Belgians, Evening Star, Gorton's Diadem, Mrs. Llewelyn, John Ball, and A. F. Barron, a fine new variety described below; Mr. Llewelyn second, Mr. Douglas third, and Mr. Dean fourth.

In class M, for a single specimen Alpine, Mr. Douglas was first with Gorton's Diadem; Mr. Turner was second with Turner's Duchess of Connaught (new, described below), third with Turner's Unique, and fourth with Susie Matthews.

Mr. Douglas exhibited a miscellaneous collection, comprising about forty plants, and Mr. Charles Turner staged about sixty very fine plants. The most noteworthy varieties in these collections were Barker's Nonsuch, Lightbody's Atlas, Traill's Black Diamond, Turner's Prometheus, Simpson's Catherine Grace, Smith's Formosa, Turner's Master Hole, Turner's Beatrice, Traill's Beauty, and Traill's Mayflower.

The prize for the premier Auricula in the Show was, as foreshadowed by "D., *Deal*," awarded to the Rev. F. D. Horner for Headly's George Lightbody, with a truss containing ten pips. This is the third year that the same variety has won this high position.

The number of prizetakers in the Auricula classes were the same as last year—seven. If we have enumerated correctly, Mr. Horner won (besides the "premier") sixteen prizes, eight of them being firsts; Mr. Douglas nineteen, two being firsts; Mr. Turner ten, two firsts; Mr. Simonite six; Mr. Llewelyn six; Mr. Dean three, and Mr. Lloyd two. Mr. Horner's plants were remarkable for their high finish, Mr. Douglas's for their vigour, some of them approaching roughness. Mr. Turner's Alpines especially for their general excellence; Mr. Simonite's for their freshness, considering their production in a black town during the black season; Mr. Llewelyn's for their marked healthfulness; Mr. Dean's as containing many laced Alpines, and Mr. Lloyd's plants were very well grown.

First-class certificates were awarded by the Judges to the following new varieties:—

Grey Friar (Llewelyn).—Flower of great size, edge slightly powdered and wired with white; tube deep; paste clear, but not quite circular; body colour nearly black. A bold striking flower.

Ringdove (Horner).—Self; tube deep in colour; paste small, pure white, and perfectly circular; colour violet plum. An exquisite flower, apparently not containing one failing quality.

A. F. Barron (Turner).—Alpine; centre yellow, smooth, and circular; colour deep maroon, with a much lighter margin. Good.

Duchess of Connaught (Turner).—Alpine; centre creamy white; colour maroon shaded with violet; good form.

POLYANTHUSES.—These though not numerous were better than those of last year. In Class N, for six plants, dissimilar, Mr. Douglas was first with Cheshire Favourite, Saunderson's William IV., Hilton's President, Rev. F. D. Horner, Crownshaw's Exile, Buck's George IV., and Cheshire Favourite. J. T. D. Llewelyn, Esq., was second with Formosa, Buck's George IV., William IV., Hilton's President, Exile, and Saunders' Cheshire Favourite. Mr. R. Dean was fourth. In Class O, for four dissimilar Polyanthuses, Mr. Douglas was again first for Buck's George IV. and Crownshaw's Exile; J. T. D. Llewelyn, Esq., being second with Cheshire Favourite and William IV.; Mr. R. Dean third with Lancer and a seedling. In Class P, for a single specimen of Polyanthus, Mr. Douglas was again first with Buck's George IV. and third with Lancer; Mr. George Smith, New Villa, Edmonton, being second with Duke of Portland; the fourth prize going to Mr. R. Dean for Cheshire Favourite. In Class Q, six dissimilar Polyanthuses other than Gold-laced, Mr. Dean was first with Ealing Crimson, Yellow Boy, Prince Charming, Monarch, Ambassador, and The Bride, all of his own raising. The same exhibitor was first, second, and fourth in the class for a single specimen with three seedlings, and third with Dean's Robusta Alba. A group of seedling Auriculas from the Royal Horticultural Society's Gardens at Chiswick was also exhibited, and a collection from Albert Chancellor, Esq., The Retreat, Richmond.

A plant of Primula auricula was exhibited, which had been brought from Switzerland by L. L. Dillwyn, Esq., M.P. It has small light yellow flowers forming a loose umbel, and is distinct and pretty.

NURSERYMEN'S MISCELLANEOUS COLLECTIONS.

These were very fine and a most valuable aid to the Exhibition. From Messrs. Wm. Paul & Son, Waltham Cross, came a group of about thirty Hybrid Perpetual and Tea Roses, the best of the former being La Souveraine, Horace Vernet, Duke of Edinburgh, Louis Van Houtte, Duchess of Edinburgh, Ferdinand de Lesseps, and Peach Blossom. The Teas Madame Falcot and Marie Van Houtte were also good. From the same firm came four boxes of cut Roses, including about ninety blooms of the best varieties. The following were excellent—Prince Camille de Rohan, Magna Charta, Sénateur Vaisse, Souvenir d'un Ami, La France, Charles Lawson, Général Jacqueminot, Cœur de Lion, and Red Dragon. A silver-gilt Flora medal was awarded. Messrs. Veitch & Son staged a group of forty-six Roses in pots, including Capitaine Christy, Royal Standard, Beauty of Waltham, Camille Bernardin, Madame Liabaud very fine, John Hopper, Baronne de Rothschild, Charles Lawson, Rosy Morn, Marie Van Houtte, and Madame de St. Joseph. The plants were generally smaller than the last group, and the flowers not fully expanded. Messrs. Veitch also exhibited fine plants of Boronia megastigma, a basket of Primula lutescens plena, and four plants of the new Magnolia stellata from Japan, which was certificated last year. The flowers are numerous, pure white with narrow petals. A silver-gilt Flora medal was awarded for the group.

Messrs. Cutbush & Sons of Highgate were awarded a silver Flora medal for a mixed group of greenhouse plants. Two specimens of Azalea amœna were very fine, the flowers being of good colour. In a pan Tremandra hirsuta had an abundance of its pale purple flowers. The white Epacris Lady Panmure was also good. A specimen of Eriostemon scabrum was well grown and flowered, and a pan of the new Azaleas Princess Maude, Mrs. Carmichael, and Lady Musgrave was very attractive. A small plant of Erica ficoides elegans bore six or seven heads of its waxlike flowers. A magnificent white Azalea 4 feet in height formed the centre of the group.

From Mr. B. S. Williams came a splendid group of Orchids and stove plants. Anthurium Schertzerianum giganteum had ten very large spathes, Cypripedium villosum had also ten fine flowers, Aërides Fieldingii had two spikes of its delicately pink-tinted flowers, Odontoglossum cirrhosum and O. Pescatorei were good, as were also Dendrobium crassinode, D. nobile, Cattleya Mendelii, Vanda suavis, and V. tricolor insignis. A pan of Adiantum Williamsii was shown, and Azaleas Mrs. Carmichael and Wm. Carmichael were finely coloured. Dionæa muscipula in a pan was healthy and bearing several heads of white flowers. The whole group was effectively arranged, and a small gold Banksian medal was awarded.

Messrs. Paul & Son, Cheshunt, exhibited a group of sixteen specimen Roses in excellent form, the plants being from 3 to 4 feet in diameter, and flowering profusely. The Hybrid Perpetuals represented were Etienne Levet, Beauty of Waltham, Victor Verdier, Camille Bernardin, Centifolia Rosea, Marquise de Mortemart, Annie Laxton, Marie Finger, and Charles Lefebvre. Teas: Madame Willermoz, Cheshunt Hybrid, Souvenir d'Elise, Marie Van Houtte, and Souvenir d'un Ami. A large gold Banksian medal was most deservedly awarded for this superb group of plants.

Mr. W. Bull was awarded a large gold Banksian medal for an

extensive collection of new and rare stove and greenhouse plants and Orchids. Dendrobium nobile Wallichianum was one mass of bloom. Cattleya citrina had five large wax-like yellow fragrant flowers. Small plants of Anthurium Schertzerianum were bright with spathes 3 inches in breadth. A small group of Odontoglossum vexillarium was extremely attractive with very large delicately tinted flowers, the variety roseum being darker in colour. Two Azaleas of the amœna type—Marvel and Emblem—were good and profusely flowered, the latter being particularly bright; Azalea balsamæflora with small neat double flowers of a bright salmon colour was very attractive. Sarracenia flava, S. Drummondii, S. rubra, and S. variolaris were finely grown. A group of Dendrobium nobile included some remarkably well-flowered plants, Coleus Surprise, green with white veins, and C. Distinction, very dark with red veins, were very neat and pretty. The whole group was backed up with fine Palms and Cycads, the centre plant being a fine specimen of Encephalartos villosus ampliatus.

Messrs. Charles Lee & Son staged a bright and showy group of Rhododendrons, Azaleas, Spiræas, Cytisuses, a few Roses and Pelargoniums, Palms and Dracænas, also a small plant of Araucaria excelsa. The plants were well grown and flowered, and merited the silver Flora medal awarded.

Mr. Thomas Pestridge, Boston Park Nursery, Brentford, exhibited twenty-four boxes of Gold and Silver Tricolor and Bronze Pelargoniums, including such good varieties as Princess of Wales, J. B. Downie, Lass o' Gowrie, Mrs. Col. Wilkinson, Lady Dorothy Nevill, Enchantress, The Czar, Mrs. Laing, W. E. Gumbleton, Miss Pond, Masterpiece, and Empress of India.

Messrs. Barr & Sugden exhibited a particularly attractive group of cut Daffodils comprising thirty-eight distinct varieties.

Mr. Cannell, Swanley, Kent, showed two boxes of cut blooms of Pelargoniums, including Lady Sheffield, Astarte, Lady Campbell, S. Holden, Gnome, Burns very fine, Dr. Denny, and Mr. Parker. All the flowers were remarkably large and brightly coloured.

A plant in flower of Billbergia Morelliana was exhibited by J. J. Wheble, Esq., of Bulmershe Court, Reading. It was very bright with long brilliant rich bracts.

A large group of Hyacinths and Tulips was exhibited by Capt. Pattern, Langford Place, St. John's Wood (Mr. J. Boultweed, gardener), for which a bronze Banksian medal was awarded. A group of twenty Azaleas came from the Royal Horticultural Society's garden at Chiswick. They were splendidly grown in 5-inch pots, the head of the plants being 18 inches in diameter, and profusely flowered. The varieties were Vander Crussen, Duc de Nassau, Rosea punctata, Comtesse de Beaufort, Souvenir de Leon Maenchart, Beauté Supreme, and Baronne de Vriere.

Fruit Committee.—Henry Webb, Esq., V.P., in the chair. Mr. W. Ravenhill, gardener to Alderman Sidney, Bowes Manor, Southgate, sent a dish of exceedingly well-grown President Strawberries, to which a cultural commendation was awarded. Mr. W. Messon, gardener to Alfred Meadows, Esq., Poyle Park, Bucks, also sent a fine dish of President Strawberry, which received a similar award. Mr. Atkins, gardener to Col. Loyd Lindsay, Lockinge Park, Wantage, sent three bunches of Black Alicante Grapes in excellent condition, which received a cultural commendation. Mr. Killick, Langley near Maidstone, exhibited a dish of Sturmer Pippin Apples in very fine preservation, and a letter of thanks was awarded.

Floral Committee.—Dr. Denny in the chair. The plants submitted to the Committee for their adjudication thereon were conveniently arranged in the Council room. Although the plants were comparatively few, yet they were select and meritorious.

Messrs. Veitch & Sons staged a small group, but its excellence will be recognised when we state that five first-class certificates were awarded—namely, to Lælia flammea, the result of a cross between L. cinnabarina and L. Pilcheriana. The flowers are nearly 3 inches in diameter, the petals and sepals which are half an inch across being of a deep rich orange colour, the small lip velvety maroon, very glowing. To Asparagus plumosus, a South African species with decompound hair-like foliage in much-divided leaflets of extreme elegance. It is a plant equalling in chasteness the most slender of the Filmy Ferns. The leaves are triangular in outline and perfectly flat. To Hibiscus Rosa-sinensis schizopetalus, a most distinct and remarkable plant. The flowers, which are borne near the extremities of the branches, are about 8 inches in diameter, the five segments not only recurving gracefully to the peduncle, but are further so deeply cut as to resemble a Platycerium in miniature, the colour being carmine scarlet. The flower is rendered additionally quaint by the anthers being borne on a very slender bundle of filaments 8 inches in length. This plant is not only a curiosity but will be fine for decorative purposes, and especially for the embellishment of the dinner-table. To Glonera jasminiflora, a hardwooded plant with Ixora-like foliage, and flowers somewhat resembling Bouvardias, and spotlessly white; and to Primula platipetala plena, exhibited under the name of Arthur de Moulin—a hardy Primrose or Polyanthus, bearing in great profusion deep rosy purple semi-double flowers with yellow centre—very useful for garden decoration. Messrs. G. Paul and Son, The Old Nurseries, Cheshunt, had a certificate for the same variety: when the plants are strongly grown the flowers are occasionally produced in umbels. Messrs. Paul also exhibited the Hybrid Perpetual Rose Madame de Montchaveau, which is evidently well suited for pot culture and forcing. The flowers are pink deepening to salmon, and are very sweet, and the foliage is extremely fine.

Mr. Denning, gardener to Lord Londesborough, was awarded a first-class certificate for a fine white Lilac, a variety of Charles X., appropriately named Alba grandiflora. It will prove a splendid shrub both for garden and forcing purposes, the flowers being very large, pure, and produced in large panicles.

Mr. Wills, Melbourne Nurseries, Anerley, had a similar award for Gloxinia Mrs. Bause, a variety with grand foliage and flowers, the latter 3 inches in diameter and of great substance; colour pure white, with a clear ring of scarlet tinged with violet round the base of the six segments; a variety of great merit.

Mr. G. F. Wilson exhibited three alpine Primulas, one of which, named ciliata, was granted a first-class certificate. It has Auricula-like foliage, and flowers, upwards of an inch in diameter, borne in large umbels of a purplish plum colour—very rich. P. Munroi was also very pretty.

Mr. Woodbridge, The Gardens, Syon House, was awarded a first-class certificate for Hymenocallis macrostephena, a huge Pancratium-like plant, a stout stem 3 feet high supporting an umbel of pure white flowers; the foliage is also 3 feet in length. Messrs. Barr & Sugden had a similar award for Narcissus incomparabilis albidus expansus (Leeds). The flower has broad expanding pale buff segments, and a deep yellow trumpet-shaped corona an inch in diameter.

Mr. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingley, was awarded a vote of thanks for Echium Decaisneanum, the blue flowers with white stamens forming dense spikes nearly a foot long and 2½ inches in diameter; very striking. Mr. Green also exhibited a cut spike of Mantisia saltatoria, a singular plant that has been recently described in our columns.

Mr. Hooper, Bath, had a vote of thanks for a collection of Pansies. A vote of thanks was also awarded to Mr. Boller, 78, South Row, Kensal New Town, for Echinocactuses, Electranthus, and Pfeifferii, and Echinops formosus, admirably cultivated. Mr. B. S. Williams exhibited the fine Croton Henryanus, also C. Goldei, also a white Amaryllis Queen Victoria; Dracæna superba, a narrow-leaved variety richly coloured, and the elegant Gleichenia diacarpa longipinnata. Mr. Parr, Givons Grove, Leatherhead, exhibited a fine Abutilon King of the Yellows. R. Smith & Co., Worcester, Adiantum farleyense var. alcicorne, with very deeply cut pinnæ. Mr. Clarke, gardener to Lord Hastings, Melton Constable, East Dereham, Pteris serrulata Meltoniensis—a drooping-crested variety of the species; and Mr. Dean, Aquilegia arctica, an elegant miniature species with pale red flowers. Mr. Caudwell, Wantage, was awarded a vote of thanks for a collection of Polyanthuses, free-flowering and gay varieties for garden decoration. Several other plants were also exhibited, but they were passed by the Committee.

Begonia prismatocarpa is an attractive little plant for a stove or intermediate house. The foliage is small and the plant is very dwarf; the flowers are pale yellow, the perianth segments being faintly streaked with orange near the base. It succeeds in a pan 3 to 4 inches deep with a soil of peat, loam, and sand, and requires good drainage. It is a native of Fernando Po.

THE MEGASEA SECTION OF SAXIFRAGES.

All the species constituting this division of the genus Saxifraga are characterised by their large, undivided, leathery leaves with stipulaceous appendages, and paniculate cymose inflorescence. They are somewhat restricted in geographical distribution, all the species at present known being confined to the Himalayas and the eastern mountains of Siberia, reaching in the former to an altitude of 14,000 feet.

Several species possess considerable merit as border or rockery plants, and are also valuable for early flowering in the greenhouse, for which purpose some are especially adapted, as they admit of gentle forcing, by which means the blooming period may be extended from early January until March or April, when they flower naturally outside. The species best suited for forcing are S. crassifolia and its varieties, S. cordifolia, S. ligulata, S. ciliata, and S. purpurascens, all of which succeed under similar treatment. The plants may be lifted in autumn and potted in a moderately light rich compost; being then placed in a cool frame they will come gradually into bloom soon after Christmas, proving extremely useful as decorative plants and also for cutting purposes, especially as the peduncles are much longer and stand up from the foliage better than when grown out of doors.

During late years this section of Saxifrages has been much

more extensively cultivated than formerly, and the value of most of the species for decorative purposes cannot be overestimated, as the bold dark green foliage and rosy pink, purple, or white flowers in dense cymes render the plants attractive both in and out of doors. We give a few brief notes on the different species as follows :—

S. ligulata, represented in the annexed engraving, is a native of Nepal, and was introduced in 1821. It is somewhat tender and requires a sheltered position outside, but is very attractive, with small cymose panicles of white flowers tinged with rose, the anthers before expansion being extremely bright. The truss figured is a small one, but the flowers are of the natural size.

S. ciliata is a native of the Mussoree Hills, and was introduced in 1843. Leaves broad, obovate, ciliated; flowers whitish, in loose panicles. This species requires similar treatment to the last-named, and forces well.

S. crassifolia, introduced from Siberia in 1765, was the first in cultivation. The leaves are large, and the flowers are of a light rose colour in dense panicled cymes. Two varieties are

Fig. 45.—SAXIFRAGA (MEGASEA) LIGULATA.

known—S. crassifolia ovata with deeper-coloured flowers, and S. crassifolia orbicularis with larger leaves and a more branching habit.

S. cordifolia has large masses of rosy pink flowers and very large leaves. Introduced in 1779.

S. Stracheyi, which has been in cultivation about nine years, was found in the Himalayas by General Strachey at an elevation of 12,000 feet. It is an extremely pretty species for a nook on the rockery, with compact cymes of finely-formed flowers, the centre being whitish and the outer part fleshy pink.

S. thysanodes has a dwarf habit, and bears a few creamy flowers tinged with crimson. It is rather tender and requires protection. Introduced in 1845.

S. purpurascens is found in Sikkim at an altitude of 12,000 to 14,000 feet. It was introduced in 1857, but is not at present very frequently seen in cultivation. Leaves broad, ovate, glabrous and shining; inflorescence branching, 10 to 12 inches high, with bright rosy-purple flowers. This is a fine plant for pot culture and greenhouse decoration.

Both for amateurs having small greenhouses, and gardeners who have large quantities of flowers to provide at all periods of the year, these plants are very useful. Until recent years their merits have not been fully recognised; and the plants were only seen, and then perhaps not much valued, on rockeries, in herbaceous borders, and in the gardens of cottages; but since it has been found that they force so readily and easily and that they are really more attractive when brought

into flower under glass than when they expand naturally in the open air, the Megasea section of Saxifrages has increased in popularity, and a brisk demand has become established for the plants.—L. C.

MIXED CULTIVATION IN HOUSES.

In the earliest vinery, where the Vines are planted 3 feet apart, nothing is grown except a row of Strawberries on the shelf, and they only remain there about five weeks, being removed when the Vines are tied up. The second vinery is used for growing Tomatoes after they have been potted out of the seed pans. A few plants are also here, but of course when the rods are only 3 feet apart nothing can be grown under them except a few Ferns. My third vinery contains Duke of Buccleuch only. In the Muscat house, that being a span, there are two rows of Strawberries on shelves, and it would be better for the Vines if they were out. My next vinery is a span running east to west, planted with Vines 6 feet apart, and having a row of Peach trees in pots each side of the walk; but after five years' experience I find these would be better out, so have now run up an extra cane on each of the Vines, and the Peaches must come out after this summer.

In the late vinery there is a row of Tomatoes on the back wall; these, when the Vines were younger, did very well, but now they do not thrive. There is also a Strawberry shelf at the back, but it is taken down when the fruit is gathered.

In newly built houses a variety of plants can be grown for a year or two, but if the house is a vinery do not plant anything that will interfere with the roots of the Vines. If Grapes are particularly wanted it would be better to plant extra Vines, fruit them the first year, and then pull them up. While the Vines are young bedding plants may be grown in the house, but after Vines are in leaf everything must be cleared out.

Houses fitted up with a shelf at the ends can be made gay by growing a few Coleuses, Geraniums, &c. I have grown successfully Cucumbers in pots in the vineries the first season they were put up, but the thrips from these passed on to the Vines. There are vineries with permanent shelves at the back, but even in this case you must lose some of the Vines, as the rods must be kept cut back. I have only six hundred Strawberries, but I am only too glad when they can be turned out of doors. Tomatoes I have had with a little green fly, but these do not become very troublesome, as they stick to a leaf, and they can be rubbed off or the leaf removed. In many cases Vines are planted wide on purpose to grow plants, but it would be preferable, and probably the cheapest plan eventually, to have a house for each. Figs on the back walls of vineries yield a few fruits sometimes, but whatever is grown at the back after the Vines are up will be a failure.—Stephen Castle, *Broadwater*.

THE HALE FARM NURSERIES, TOTTENHAM.

Many beautiful plants are now flowering in these nurseries, which are deserving of note. Some charming little Scillas render the beds gay, the best being S. bifolia taurica, broad leaves and small light blue flowers; S. bifolia rosea, star-shaped flowers faintly tinged with pink; and the white variety S. bifolia alba. S. amœna has short bright green leaves and compact racemes of small bright blue flowers; S. præcox and S. sibirica are very similar, but the latter is more attractive with darker blue and larger flowers. Amongst hardy plants for pot culture few excel the pretty Androsace Laggeri; the leaves are acute, simple, and spreading, about half an inch long; the flowers are pink with a darker eye, in few-flowered umbels. Draba lasiocarpa and D. ciliaris also in pots are very similar, the former being rather brighter; the leaves are ciliated and acute, arranged in a rosette-like manner; the compact corymbose racemes of fine yellow flowers are very distinct and good. D. azoides is flowering profusely in a bed near the last. In a frame is the delicate little Narcissus rupicola, with linear glaucous foliage and single-flowered scapes 5 or 6 inches high; the blooms are small, of exquisite form, and of a bright yellow colour. Narcissus cernuum plenum in a bed is also very pretty with its double drooping flowers; N. minor and N. nanus are blooming freely. Iris reticulata and I. persica are superb in large beds, the latter far surpassing in colour the form we recently described which had been kept in a cool house. Sisyrinchium grandiflorum and the variety album are pretty. In a frame several Puschkinias are flowering; P. sicula has racemes of small white flowers, the perianth faintly veined with blue, and P. scilloides is just showing its tiny bluish flowers. Both species are natives of the Caucasus and Mount Lebanon, and are quite hardy. There is another species not yet in cultivation, but described as very pretty—viz., P. hyacinthoides, a native of Kurdistan. Crocus biflorus pusillus has linear grass-like leaves and small white flowers with dark veins on the under part of the corolla.

Primula spectabilis is now expanding its large rosy purple flowers in the open air; and in a small house are some beautiful varieties of the cortusoides type. P. cortusoides amœna has loose umbels of rosy purple flowers. P. amœna lilacina, flowers pale lilac with fimbriated petals. P. amœna clarkiæflora has fimbriated petals of a bright rosy colour. P. amœna fimbriata oculata is similar to lilacina, but tinged with red and better fringed. P. amœna alba has large white flowers in loose umbels. P. intermedia, a neat little plant with reddish-purple flowers; and the pure white variety is very good. These are only a few of the plants now in beauty in Mr. Ware's great collection.—L. C.

ROYAL BOTANIC SOCIETY.

April 23rd.

The second spring exhibition of this Society was held in the corridor and conservatory, the exhibits generally being fine but not very numerous. The classes for Pelargoniums and Alpine plants were not well filled, and the following were entirely absent—viz., new Roses, Rhododendrons, hardy Azaleas, and Heaths. Messrs. Paul's Roses, and the groups from Messrs. Veitch, Bull, Williams, Cutbush, and Carter contributed very largely to the success of the Exhibition.

In the open class for twelve stove and greenhouse plants in 12-inch pots only one collection was staged—namely, by Mr. George Wheeler, gardener to Lady Louisa Goldsmid, Regent's Park. The best plants were Clerodendron Balfourianum, Tetratheca ericæfolia, Boronia pinnata, Azalea Stella, Rhynchospermum jasminoides, and Eriostemon pulchellum. The first prize was awarded. There was only one collection of Alpine plants, from Mr. George Wheeler, who was awarded the third prize. The collection included Arabis albida, Scilla nutans, Saxifraga crassifolia, Primula cortusoides, and Polygonatum multiflorum.

In the amateurs' class for six greenhouse Azaleas in 12-inch pots the first prize went to Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, for magnificent plants of Baronne de Vriere, Duc de Nassau, Virginalis, General Todtleben, Hortense, Vervaene, and Auguste Van Geert; the second prize going to Mr. James, gardener to F. Watson, Esq., Isleworth, with smaller but well-flowered plants. Mr. George Wheeler was third. In the nurserymen's class Mr. Charles Turner, The Royal Nurseries, Slough, was awarded a first prize for extremely well-flowered plants of Cordon Bleu, Marie Vervaene, Ferdinand Kegeljan, Queen Victoria, Duc de Nassau, and Etendard de Flandres, this being the only exhibit.

In the class for nine Cinerarias Mr. James was first with remarkably even and well-flowered specimens, including Mrs. Beck, Mrs. Watts, Uncle Tom, Mrs. Winter, Sarah Winter, Mrs. Bland, John Lee, Compactum, and Her Majesty. Mr. J. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, was second with smaller but also even and well-grown plants. Mr. A. Wright, gardener to G. Brightwen, Esq., The Grove, Great Stanmore, was third with very large but somewhat coarse plants.

In the open class for six Amaryllises Mr. Wiggins was awarded the first prize for Morning Star, Hereward, Ceres, Rembrandt, Hercules, and Princess Dagmar, very fine flowers and brightly coloured. Mr. B. S. Williams was second with Dr. Hogg, Transluceus, Holfordi, Prince Teck, Mrs. Rawson, and E. Pilgrim also very good and bright.

In the amateurs' class for six Roses in pots the first prize went to Mr. James for small but well-grown plants of Duke of Edinburgh, Paul Neyron, Souvenir d'un Ami, Edouard Morren, Dr. Andry, and Thérèse Levet.

In the nurserymen's class for nine Roses Messrs. Paul & Son of Cheshunt, the only exhibitors, were awarded a first prize for magnificent specimens of Madame Thérèse Levet, Madame Victor Verdier, Madame Lacharme, Edouard Morren, Perfection de Monplaisir, Paul Verdier, La France, and Dupuy-Jamin. The same firm also staged a collection of eighteen specimen Roses, for which an extra prize was awarded. In the open class for nine Pelargoniums Mr. Charles Turner was awarded a first prize for the only collection, the varieties being Leopold, Duchess of Edinburgh, Belle Blanche, Gauntlet, Duchess of Bedford, Kingston Beauty, Claribel, and Mrs. Bradshaw, of moderate size but well grown.

In the open class for twelve Auriculas the first prize went to Mr. Charles Turner for Read's Miss Giddings, Traill's General Neill, Campbell's Lord of Lorne, Lightbody's Robert Traill, Traill's Rev. George Jeans, Moore's Violet, Simpson's President, and Turner's Col. Champneys, Clipper, Charles J. Perry, James Douglas,

and Headly's Arabella. J. T. D. Llewelyn, Esq., Ynisygerwn, Neath, was second, and Mr. James third.

An extra prize was awarded to Mr. Wiggins for a collection of twenty Cinerarias, very even and highly deserving of the recognition they received. Extra prizes were also awarded to Messrs. Veitch for a fine group of small Roses in pots; to Messrs. Cutbush for a mixed collection of plants; to Mr. Ratty for fine specimens of Imantophyllum miniatum and Dendrobium densiflorum; to Messrs. Carter & Co. for a large group of Cinerarias, Spiræa japonica, and S. palmata; to Mr. B. S. Williams for a rich group of Orchids and stove plants; to Mr. Geo. Wheeler for a miscellaneous group of plants; to Messrs. Wm. Paul & Son of Waltham Cross for eight boxes of cut Roses, including about 160 very fine blooms; to Mr. Charles Turner for a collection of 150 very fine Auriculas; to Mr. James for a group of excellent Cyclamens; to Mr. Heims, gardener to F. A. Phillbrick, Esq., Q.C., Avenue Road, Regent's Park, for a very fine group of Orchids, including the striking Sophronites grandiflora and Ada aurantiaca, also Oncidium concolor, Cattleya citrina, Odontoglossum cirrhosum, and Dendrobium fimbriatum oculatum, all well-grown plants; to Mr. Bull for an excellent group of new and rare plants, most of them being specially mentioned in another column; to Mr. Boller for a group of succulent plants; and to Mr. Pestridge, Boston Park Nursery, Brentford, for twenty-four boxes of Zonal Pelargoniums.

Botanical certificates of merit were awarded to Messrs. Veitch and Sons for Asparagus plumosus from South Africa, described in another column; Odontoglossum odoratum, from New Grenada, flowers small, sepals and petals yellow thickly spotted with brown, and undulated margins; Croton Hawkeri, South Sea Islands, narrow lanceolate leaves, with a pale yellow centre; Sarcochilus Fitzgeraldi (Australia), small white flowers spotted with pink at the base of the sepals and petals; Oncidium Kienastianum, crisped petals, dull brownish-yellow; Phalænopsis Parishi (Burmah), small reflexed sepals and petals, and a dull purple labellum; Odontoglossum Ruckerianum (New Grenada), which has a raceme of pinkish-white flowers, the sepals, petals, and labellum being spotted with brown; Kentia MacArthuri, an elegant Palm with pinnate leaves, the pinnæ narrow, dark green, and acute. To the same firm a floricultural certificate was awarded for Primula platypetala plena.

Mr. Bull was awarded botanical certificates for Dendrobium nobile atropurpureum, much darker and brighter than the species; Geonoma concinna, a graceful Palm, with pinnate leaves; and also for Kentia Wendlandiana, with bold pinnate leaves. Similar awards were also granted to Mr. B. S. Williams for Croton Dormanianus, small leaves, veined and marked with yellow; Croton Henryanus, with broad elliptical leaves, yellow centre and veins; Dracæna superba, leaves narrow, dark red, with lighter streaks; and a Cycad, Catokidozamia Hopei, with very elegant dark green pinnate foliage. Mr. Boller was also awarded a botanical certificate for Echinocactus Pfeifferii.

NOTES AND GLEANINGS.

We regret that Mr. G. Thomson, the accomplished garden Superintendent at the Crystal Palace, has tendered his resignation. We understand that the Directors, in order to reduce the expenses of the establishment, desired the systematic sale of surplus plants. To those having a knowledge of the immense number of plants required for the proper decoration of the huge building and the limited extent of glass suitable for producing them, it has been a matter of surprise that the Palace has been furnished so well; and with existing means a surplusage of plants of material value becomes a practical impossibility. Having already effected a saving of £2000 per annum, and at the same time maintained the department under his charge in a state of singular efficiency, Mr. Thomson felt himself unable to make further reductions without impairing the character of the Gardens and jeopardising his own credit. He was therefore impelled to take the step referred to, and his term expires on the 9th of May. Under the present management the gardens and grounds of the Palace have attained not a national but an European reputation. The public, and especially the metropolitan public, accustomed to the high-class decoration of the public parks, are becoming increasingly critical and appreciative; and many thousands visit those parks and the Crystal Palace in summer because of their beauty and high keeping. To see the Palace grounds in any measure divested of their attractions were a source of national regret; and we trust that even now arrangements may be made that the greatest feature of the Palace will be preserved in its integrity, and that a gardener in all respects so competent as Mr. Thomson is will not be separated from a charge that has brought credit on himself and honour on the Directors of the finest place of public resort in the world: if otherwise, a manager so able cannot long remain unoccupied; but that either in a public garden or on a private estate he will find congenial employment and scope for the exercise of his admitted ability.

—— Referring to the National Chrysanthemum Fund a Liverpool grower hopes, that now a subscription has been forwarded from Liverpool towards the £50 to be contested for at Birmingham, that growers from other localities will also contribute if they have not already done so, for the Liverpool growers are anxious that their merits relative to growing Chrysanthemums shall be tested with the growers from other districts.

—— We learn that a cup, value £10, will be given at the Bath and West of England Society's Show for the best Orchid in a group of any number exhibited by amateurs, the gardener to have £5 in money. This ought to cause some good Orchids to be staged at Exeter. The Show is expected to be an exceptionally fine one, many contributions of great value being promised for the horticultural tent. The Exhibition opens on June 2nd, and continues for five days.

—— The Royal Horticultural Society of Ireland's Spring Show was held on Thursday last at the Exhibition Palace. The most prominent feature in the plant section was the magnificent group of exotics exhibited by Mr. Westby, and which was awarded the Society's cup. The same exhibitor also won the cup for a group of Azaleas, his specimens being large, capitally grown, and profusely bloomed, and reflecting much credit on his gardener Mr. Bracken. Of spring-flowering plants Cyclamens and Chinese Primulas were well shown. Some fine groups of plants, forwarded (not for competition) from the Viceregal Gardens, formed a noteworthy feature of the Show, and the specimens bore unmistakeable testimony to Mr. Smith's well-known ability as a plant-grower. The Show of Hyacinths was first-rate; indeed we have never, perhaps, seen finer flowers than were staged on this occasion by Mr. H. J. Jury and Mrs. Lloyd Vaughan. The merits of the two groups were rather evenly balanced, and the Judges must have had some difficulty before they could arrive at a decision and award the Lord Lieutenant's cup to the former exhibitor. Fine lots were also exhibited by Lord Justice Fitzgibbon, Sir James Mackey, and others. The show of Auriculas was also good. Two splendid stands of Maréchal Niel Rose, staged by Mr. Doyle and Mr. Westby, formed one of the most attractive features of this department. The display of fruit was, of course, small. We noted a good tray of black Grapes, some one or two dishes of Strawberries, and several dishes of Apples and Pears.—(*Irish Farmers' Gazette.*)

—— We have received a box full of Tea Roses from the Hon. and Rev. J. T. Boscawen, which are worthy of the production of a Vice-President of the National Rose Society. The blooms and foliage of Maréchal Niel are good—remarkably so, when it is remembered that the plant that produced them is bearing a thousand blooms; but far finer are the blooms of Céline Forestier and Souvenir d'un Ami. The former Rose was never seen so fine at this period of the year, and the latter we have rarely seen surpassed at any season. Mr. Boscawen informs us that he cannot grow Hybrid Perpetual Roses in summer in his beautiful Cornish garden, but it is evident that he can grow Tea Roses in spring of exceptionally high merit. We know not which to admire most, the substance, colours, or delicious perfume of the excellent blooms now before us. Everyone who has the means of doing so should grow these and other Tea Roses planted out under glass, for no flowers at this period of the year can surpass them, and few can equal them.

—— At a general meeting of the Royal Horticultural Society held on Tuesday last, Lord Alfred S. Churchill in the chair, the following candidates were duly elected Fellows—viz., Robert Narcissus Batt, H. J. W. Cox, Miss Frances E. Fawcett, T. W. Lewis, Henry Merryweather, Mrs. Henry Merryweather, Miss Ratliff, Mrs. Cotterill Scholefield, Charles St. Barbe, Mrs. C. Ernest Tritton, and Robert Wigram.

—— Rhododendron Lady Skelmersdale, which we recently noticed in Mr. Williams's Nurseries at Holloway, is very valuable for conservatory decoration. It is of the R. fragrantissimum type and is very dwarf in habit, producing large, somewhat reflexed, pure white fragrant flowers. In fine contrast was Azalea Princess Maude—amœna type, with rich pink flowers. The hose-in-hose variety Duke of Connaught that was recently certificated will also prove a standard variety for decorative purposes. Planchon, semi-double, with very large pure white flowers, is a variety of great promise. Amongst

the Camellias, a very fine stock, the white variety Frostii alba is one of the finest. Amongst other flowering plants Amaryllis William Pitt was extremely rich, and the new Abutilon Fire King was flowering with great freedom. Amongst the Ferns the new Gleichenia discarpa longipinnata commands attention by its great elegance and apparently free growth. Adiantum Williamsii is also particularly attractive in the young state; and charming are the Filmy Ferns, especially some of the Trichomanes growing under glass shades, forming chaste ornaments for rooms. Fern-like and very elegant is Jacaranda mimosæfolia, a plant not grown so extensively as it ought to be. On a shelf in an intermediate house Dionæa muscipula is growing luxuriantly in 3-inch pots and flowering freely. Orchids are numerous and rich, the Vandas being remarkably fine; and in bright contrast are the Crotons. C. Williamsii is a grand plant richly coloured. A noble and telling variety also is C. Henryanus, the leaves being 10 inches long by 4 wide, a clear central broad band of yellow radiating into a rich green edge. C. Prince of Wales is recognised as one of the best, and C. Burtoni is worthy of being included in all collections, the yellow being of the brightest and green of the richest of any of the genus.

—— A CORRESPONDENT, who has recently visited RAVENSWORTH CASTLE, informs us that Camellias grown by Mr. Moult are now extremely fine—plants of Chandleri, Bealii, and Donckleari, 8 and 10 feet high, being in superb health and covered with flowers; Azaleas Roi Leopold and Souvenir de Prince Albert are also in superior condition; as also are Clerodendron Balfourianum and Victoria Regina; the latter is described as a charming variety.

—— WE alluded last year to the usefulness of AURICULAS AS DECORATIVE PLANTS that might with advantage be more generally employed by gardeners for the adornment of the greenhouse and conservatory. We are informed that Mr. Elliott, gardener to W. G. Bateson, Esq., New Heys, Allerton, Liverpool, grows them successfully for this purpose, the front shelf in the conservatory under his charge being now occupied by one hundred plants in flower, and that many visitors derive pleasure from witnessing the charming display produced by these beautiful alpine flowers. A few of the finest are Robert Traill (grey edge), Nonsuch (self), Mrs. Sturrock (self), Atlas (grey edge), Fair Maid (grey edge), Lovely Ann (green edge), Emma (grey edge), Charmer (self), and Bright Venus (grey edge). Mr. Bateson, we are informed, is a great florist and has become an admirer of Auriculas during the past two years.

—— A FEW shoots of ASPARAGUS were about an inch above the bed's surface on the 20th inst. at Croydon. On the same beds last year they were in a similar state on March 29th.

—— "WILTSHIRE RECTOR" informs us that 8° of FROST were registered in his garden on the nights of the 17th and 18th inst. No growth is visible anywhere, but still the buds are so backward that unless the trees were hurt early in the winter all will be well. Pear blossom promises fairly only, Apple blossom abundantly.

—— MR. R. BAILEY WALKER, F.S.S., Secretary of the Vegetarian Society, desires to call attention to a resolution passed at the last Anniversary Meeting of that Society, "inviting the attention of all holders and occupiers of land to the importance of the CULTIVATION OF FRUIT as an auxiliary food supply, and urging the planting of fruit trees in all gardens, hedgerows, and on waste lands as a profitable, productive and healthful industry, and in these times of scarcity of food, disease among cattle, and great national distress, especially commending to landed proprietors and public corporations—on the grounds of both utility and beauty—the systematic planting of fruit trees along railways, roadways, riverways, canalways, and wherever practicable." Information is also requested as to what has been done, or is being done, in this respect in any district of the kingdom. Further, if any measures can be suggested which would contribute to the planting of hill-sides, waste or unused lands, and to the more general cultivation of suitable fruit trees in hedgerows, cottage gardens, and orchards; and lastly, if any method could be adopted whereby the home-grower of fruits would be benefited by being brought into more direct or satisfactory communication with the large body of consumers.

—— A CORRESPONDENT, "DELTA," writing to us on RASPBERRIES TRAINED ON WIRE TRELLISES, states that nearly all his canes are dead, "those only escaping which have not touched the iron." We have not before heard of a similar case, and shall be glad to record the experience of others relative to the subject. Our correspondent desires to know "if it was the cold that killed the canes, or whether the iron wire is to blame."

—— WE have received from Col. Harcourt of Buxted Park, Sussex, a branch of SCOTCH FIR bearing one of those dense bushy growths such as are sometimes found on the Beech and Hornbeam. It forms quite a large mass as big as a magpie's nest. None of the shoots exceed 2 inches in length, and were the whole mass capable of being removed and grafted on a rooted stock it would form a pretty bush like the Abies Clanbrassiliana.

WORK FOR THE WEEK.

MUSHROOM BEDS.

MUSHROOMS grown in houses in and after May become maggoty; therefore, to insure a supply of wholesome Mushrooms, materials should now be collected for the making of beds in more airy situations. At this season of the year it is preferable to spread out any part of the material that appears too moist, rather thinly in the sun, and if necessary turn it over once or twice until it becomes moderately dry. If there be a scarcity of material the smaller parts may be shaken out of any crude stable litter and mixed with a third or even a half of Oak or Beech leaves in a dry state, which will prevent too speedy decay and add to the lasting capabilities of the beds. Let the site for the bed or beds be a dry sunny one, and unless the ground be so high as to preclude the possibility of water draining to or settling about the bed, a foundation must be laid of faggots or brushwood, so as to form an elevated base covered with a layer of coarse litter previously to putting on the principal material. The form of the bed must be conical, so that heavy showers can drain away freely; a width of 4 to 6 feet is serviceable, and the height should be about 2 feet in the centre. A main point is to make the bed as solid as possible, and placing the materials evenly allow them to attain a good state of fermentation, when they should be well trodden and beaten down. In the course of a few days the bed will be ready for spawning, but this must not be undertaken until there is a steady temperature of 75° at about 3 inches from the surface, though the heat in the centre of the bed may be 90°. If above that it must be deferred until the temperature is suitable. The spawn, in pieces of about 1½ to 2 inches square, should be inserted about 9 inches apart every way, and so deep as to admit of being covered about an inch with the same material of which the bed is composed, firming it well about and over the spawn. As soon as the bed is spawned a covering of hay or soft straw should be placed over it rather thinly, doubling it in about a week's time or when the heat is on the decline. In about a fortnight it will be seen whether the spawn is running or not; if it is the bed should be earthed with turfy loam chopped up moderately small; it should be about 2 inches thick and in a moist state, so that it can be beaten down very closely, and if too dry for that it must be watered, and after making it firm water gently again, and smooth it over with the spade, forming an even unbroken surface. Cover with the litter as previously, it being advantageous to use tarpaulin to ward off heavy rains. In about six weeks the Mushrooms may be expected to appear. Beds in bearing should be sprinkled overhead daily with tepid water, and any that are becoming exhausted may be advantageously watered with tepid liquid manure; and to stave off insect pests follow in four days or so with a surface watering of two ounces of salt to each gallon, this and the liquid manure being heated to 90° or 100°.

FRUIT HOUSES.

Vines.—Encourage late kinds of Grapes to make a vigorous growth; plying the syringe twice every day, keeping the evaporation troughs filled with liquid manure, and after the leaves attain their full size a sprinkling of guano over the inside border to the extent of about 1 oz. per square yard and damped, will be inimical to red spider, and will also invigorate the Vines. The stewing system is now discarded from the practice of our best gardeners, a little ventilation being provided at the upper part of the house at night, as nothing is so injurious to fruit trees as a close vitiated atmosphere for a lengthened period. Dispense with fire heat as much as possible, and assist nature by closing early in the afternoon on bright days. Muscats in flower should have a rather dry atmosphere, at least a free circulation of dry air with a temperature of 85° to 90° by day with sun heat, allowing it to fall to 70° at night. Avoid overcrowding the foliage, particularly in the case of Muscats, which set in proportion as the bunches are exposed to sun. The pollen should be set at liberty by gently rapping the footstalk of the bunches when in full flower, and when the maximum temperature of the day is reached. Encourage the growth of as much foliage as can be fully exposed to the light, and do not allow the laterals to extend so as to crowd the principal leaves, but keep them closely stopped when all the available space is appropriated. Thinning must be attended to as the Grapes go out of bloom, beginning with the free setters such as Hamburghs;

the shy setters should be left until it is seen which berries are fertilised by their taking the lead. The operation of thinning is always best done early and late in the day, or on dull days when the temperature is cool, and the Grapes should not be touched with the hand. It requires a person with a bold hand to remove surplus bunches, greed of crop being only courting a bad finish. Crops swelling-off must have a liberal supply of heat and moisture both at the roots and in the atmosphere until they begin to colour, when a circulation of rather dry warm air is necessary, but at the same time affording a plentiful supply of water to the roots. It is well to go over the bunches prior to the Grapes colouring, removing any small or seedless berries and such as are likely to become wedged.

Peaches and Nectarines.—In the earliest house the fruit will be swelling rapidly, and the crop being favourable it is well to remove the smaller fruit and to afford the final thinning before any great advance is made with the last swelling, or it will be of little advantage to those remaining. The shoots must also be well tied in so as to give the fruit all the sun and air possible for its colouring, and if the leaves shade it they must be drawn aside or removed. See that there is no trace of red spider, or if there be apply an insecticide and syringe forcibly, directing the force of the water against the under side of the leaves. Syringing, however, must be discontinued when the fruit is beginning to ripen, and the supplies of water to the inside borders must be gradually lessened from that time. When the fruit is getting ripe some netting should be placed below the trees to catch any fruit that may chance to drop. Continue to disbud the shoots, and thin the fruit in successional houses, and with the trees in a healthy state thinning may be practised to the extent now of the quantity desired for the crop, being particular in reserving the best placed on the shoots for the sun and air to reach them. In watering inside borders ascertain that the roots of the trees are reached by it, for the surface is mostly damp through syringing whilst the subsoil is much too dry. Syringe morning and afternoon to keep red spider in check, and fumigate upon the first appearance of aphis.

Cherry House.—No undue excitement should be given to the trees until the stoning is completed, which will be known by the fruit commencing to colour, when, if it be desirable, the ripening may be accelerated; but it must be chiefly effected by the maintaining of a higher temperature by day, there being no lack of ventilation, a free circulation of fresh air being secured though it may be in diminished quantity. From the time that the fruit commences colouring syringing must cease, or the Cherries will crack and will not hang on the trees after being ripe. Black and white Cherries afford two distinct dishes when fresh fruits are not very plentiful. The borders must be duly supplied with water and their surfaces kept moist, supplying trees in pots or tubs with weak guano water whenever necessary. Attend to tying-in the shoots and stopping them as required. Ply the syringe freely over Plum trees morning and afternoon, and if aphis appear fumigate at once.

Orchard House.—The spring, if we may term it one, has been remarkably backward, which has operated upon fruit trees in unheated structures as well as on those in the open air, but with no injurious results, the prospect of the fruit crops of all kinds being all that could be desired. There is no more interesting sight than orchard-house trees in flower, the blossoms presenting so many different forms, sizes, and shades of colour. Free ventilation is essential to a good set; more especially is this the case with Apricots and Cherries, which can hardly have too much air. Take advantage of fine days to shake the trees in full blossom after the ventilators have been open for a few hours, and it may be repeated early in the afternoon. Admit air early in the day. Both the top and side lights should be open, and whenever there is danger of frost they may be closed rather early in the afternoon, as a high temperature from sun heat during the latter part of the day is not injurious and may prevent an undue depression of temperature during the night. The entire mass of soil in the pots must be kept in a moist condition, not merely damping the surface, the same remarks applying to trees in borders.

Cucumbers.—Water abundantly in houses, and keep plenty of moisture in the atmosphere all day by frequent dampings, syringing both ways at about 3.30 P.M., closing at the same time. Shading may be necessary in the middle of the day for an hour or two in bright weather to prevent flagging, but with the roots healthy and abundant very little shading will be necessary. In watering plants in pits and frames do so sufficiently early to have the foliage dry before nightfall, maintaining a good bottom heat, and the same temperature as advised last week for Melons. Ventilate early and moderately, husbanding the sun heat by early closing, employing a thick night covering, as the nights are yet cold. Avoid overcrowding, keeping the shoots stopped one joint beyond the fruit, removing bad leaves as they appear. Keep young plants near the glass, which is particularly necessary for ridge varieties. Wireworm is often troublesome; baits of carrot, turnip, or potato cut into thick slices and pressed gently into the surface of the bed will attract them, the baits being examined every day and the wireworms destroyed. For woodlice place boiled potatoes wrapped loosely in hay in flower pots, and stand the pots where the woodlice abound, examining every day and destroying those secreted in the hay. A toad or two placed in a frame will soon destroy many woodlice. To secure straight fruit employ glass tubes.

PLANT HOUSES.

Stove.—Anthurium Schertzerianum is one of the easiest grown, not requiring so much heat as many stove plants; it is deserving of being grown in quantity, for its bright-coloured spathes are very durable. It succeeds best if rested in winter in a minimum temperature of 50°, keeping it moderately dry, and starting in March with a temperature of 60° to 65° by artificial means. Do not overpot the plants. Fibrous peat, rejecting the finer particles, mixed with a little sphagnum, some small crocks and a little sand, will suit it well. Good drainage must be provided, as the supply of water must be very liberal during growth. Sonerila margaritacea, from its beautiful white mottling on the leaves, is very pretty, and is not nearly so much grown as it deserves. It cannot bear a dry atmosphere nor to be dry at the roots, and is impatient of the direct rays of the sun, otherwise it requires plenty of light. Good fibrous peat mixed with small crocks and sand suit it well. A companion plant is Echites nutans, that has beautiful bright veins in the leaves: this with E. argyræa and E. rubro-venosa are inferior only to those lovely little gems the Anæctochiluses in their leaf-markings, and plants of moderate size are very effective, but they must not be allowed to flower, as the fine colouring in the leaves is then lost. Three plants may be grown in a 6-inch pot, and more in proportion as the pots are larger. They should be placed near the glass, but shaded from the direct rays of the sun.

Table Plants.—Dracænas are particularly valuable for table, hall, and room decoration, especially some of the recent introductions, notably those with narrow leaves, D. Sydneyi and D. Ernesti being very beautiful. Any plants that are too tall or leafless in the stem may have the tops taken off, potted singly in 4-inch pots, and placed in a brisk heat where they root quickly, or a notch may be cut in the stem just below the leaves about halfway through, and the part be covered with moss kept constantly wet, into which roots will be speedily emitted, when the head may be detached and potted. The older stems may be cut into short lengths, just buried in tan or other material and kept moist. If there be bottom heat it is an advantage. Pot as soon as rooted, and encourage the plants to make growth by affording them plenty of heat and moisture. The old stools being retained will push strongly. Turn them out of the pots as soon as that is effected, removing all the soil, and return them to pots that will just admit the roots. Aralias are the finest of table plants, especially A. elegantissima, A. Veitchii, A. Veitchii gracillima, and A. reticulata. The last-named species strikes freely and forms a good stock on which the others can be grafted. Cupania filicifolia has also very elegant Fern-like foliage. The tops taken off from 8 to 10 inches in length will root if they are placed in a brisk moist heat. Terminalia elegans with its narrow lanceolate leaves and fine markings is also available. The newer forms of Crotons in moderate sizes are fine decorative plants. Cuttings 8 to 10 inches in length kept close and warm will root freely, and with proper attention soon make good plants. Those that cannot command heat for striking cuttings may break a 3-inch pot in halves, notch the shoots of the Croton, place the two halves of the pot so as to enclose the notched shoot, securing the pot together with wire and fix it to a stake, then fill it with sandy soil. If this is kept moist well-rooted plants will be obtained in a few weeks. They are then detached and grown on.

Palms.—Plants of small size are always serviceable. Cocos Weddelliana is now so reasonable in price as to be within the reach of everyone, and is perhaps the most graceful and elegant of the small-growing Palms. Kentia australis, Thrinax elegans, Chamædorea Ernesti-Augusti, C. gracilis, C. graminifolia, C. fissus, Latania rubra, Areca lutescens, Thrinax argentea, Phœnix reclinata, P. tenuis, and Kentia gracilis are a dozen that will do service for a long time in 6 or 7-inch pots for table decoration, and when they become too large are useful for halls, &c. Palms like plenty of water, especially when growing, and a free open soil, doing well in lumpy loam.

Nepenthes.—These will now be in active growth, the young leaves fast showing their pitchers. Do not overshade or cause attenuated growth by keeping the plants a long distance from the glass, as the pitchers are then neither large, finely marked, nor durable. They must have plenty of water and corresponding atmospheric moisture. Sarracenias like plenty of light but not direct sun, and should have a good soaking of water every day. Of all the plants that thrips infest they are most partial to these and soon disfigure them; therefore promptly assail them with tobacco smoke, and do not afford a higher night temperature than 60°. Darlingtonias often grow for a season and then dwindle away, and this mostly arises from their being kept too warm. A close frame or pit is a more suitable place to grow them in than a warm house.

Vincas are useful plants; they will now be growing freely and, it may be, showing flower, the points of the shoots being pinched

out they will break back and form bushy plants, the shoots being brought down so as to clothe the plants to the rim of the pot. By this stopping and training the flowering will be retarded, and will prove all the more acceptable from flowering when the earlier-flowering stove plants are over.

Stephanotis floribunda is often unsatisfactory, chiefly from being grown too warm and moist and not having plenty of light, it being essential that the growth be short-jointed and well solidified. Plants showing flower should have the lightest position the stove affords, and if the flowers are expected to retain their pure white waxiness no more heat should be given than is necessary to keep the plants gently growing; a night temperature of 60° is sufficient, with 10° to 15° rise by day. Keep a strict look-out for mealy bug, as those destroyed now save much trouble. Scale also should be destroyed whilst it is young, as to allow it to become brown and hard is only to propagate it by removing it when in that condition.

Fumigate upon the first appearance of thrips, also aphis. Maintain a good moisture by syringing overhead morning and afternoon at closing time, so as to have the foliage dry before night; but damp the paths, &c., well before night. Shade will be necessary during bright sun, the blinds being let down early in the day, but from 4 to 5 P.M. they should be withdrawn and whenever the sky is overcast.

Ferns.—Such plants as Adiantums, Pterises, &c., grown for cutting, should be gradually hardened off from the humid atmosphere of the ordinary Fern house, placing them in a house or pit where they will receive more air, and have as much light as they will endure, which will induce a hardier growth; and though this will somewhat stunt the growth and the fronds may be paler, they stand much better, and are therefore more effective in bouquets or vases. Ferns that are intended for employment in rooms require to be prepared in the same manner. Any young plants in small pots may be shifted into larger pots, taking into consideration the purpose for which the plants are intended, and shift or restrict the pot space accordingly.

FLOWER GARDEN.

Violets.—Those in frames as they go out of bloom should be thoroughly hardened off, and the plants being lifted take off the suckers with the roots attached, selecting the strongest and best rooted, and plant them out in rich soil in an open situation 1 foot apart every way for the single varieties, such as Victoria Regina, Odoratissima, and White Czar; but 9 inches will suffice for the double varieties—New York, De Parme, Marie Louise, Venice, Belle de Chantenay, King, &c.; watering them well until established, keeping off all runners, and weeds must not be allowed to make headway. The finest of all single Violets is Prince Consort, the flowers being nearly as large as Pansies and bluer than Victoria Regina. Rooted runners are suitable for planting.

Ivy.—This, the most useful of all evergreen coverings for walls and rustic work, should now be cut in quite close with the shears, or if the growths be strong with the knife, and will soon become quite green and fresh again; whereas if left uncut it not only becomes ragged, but the falling leaves produce a litter in summer, when tidiness is most needed.

Evergreen shrubs of almost all kinds may now be pruned. Common and Portugal Laurels, Yews, Hollies, Laurustinus, &c., may be cut hard back, as they break freely from the old wood, whilst any that are merely straggling should be pruned into form. Conifers and choice ornamental trees should be looked over to see if any are producing rival leaders; if so, the best should be retained and the others cut out, or the symmetry of the tree will soon be destroyed. Lateral branches in like manner that are taking the lead should be shortened back so as to equalise the growth and secure well-proportioned specimens, yet avoid severe pruning and undue formality. Evergreens may now be transplanted with the greatest safety, it being best performed when they are starting into growth, as the growth consequent on the increasing warmth and genial showers induces speedy root-action. In case of drought, however, watering must be attended to, sprinkling overhead in the evening with the garden engine, mulching over the roots with partially decayed leaf soil or other short material.

TRADE CATALOGUES RECEIVED.

Dicksons & Co., Edinburgh.—*Descriptive Catalogue of Florists' Flowers.*

W. Lovel, Weaverthorpe, York.—*A List of Strawberry Plants.*

Louis de Smet, à Ledeberg-lez-Gand, Belgium.—*List of Novelties and General Plant Catalogue.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOK (*D. Brown—A. C. B., last week*).—The "Handbook of British Plants," published at this office, post free 2*s.* 8*d.*, will probably suit you.

ADVERTISEMENT (*G. B. B.*).—The cost of your advertisement of forty-eight words for three insertions will be 4*s.* 6*d.*

CANTERBURY ROSE SHOW (*H. B. B.*).—Your letter was forwarded to "EXHIBITOR," and your show is added to the list.

GARDENER (*Spero*).—As the man in your employment is a gardener doing all your gardening work, and is not a labourer assisting in the garden, you are liable to pay duty for him.

ASPHODELUS TAURICUS (*P. C.*).—It is a hardy herbaceous perennial introduced from Tauria in 1812. Afford it rich deep soil, rather moist but not stagnant, and it will thrive satisfactorily.

CARPET BEDDING (*H. G. B.*).—Iresines are much too tender for placing in a cold frame so early in the season and during the present cold weather. Your letter shall be answered more fully next week.

PANSY (*Sidmouth*).—The flowers, which are of stout substance and rich colour, belong to the Fancy section. They are not equal to named varieties in commerce, the belting not being sufficiently defined.

FUCHSIAS (*A Lover of Rose Shows*).—Under the circumstances you name you cannot expect to have plants of any great merit for an exhibition in July. As soon as the plants are growing freely and the roots have entered the fresh soil you may pinch out the growing point of each plant: at least two shoots will then issue, one of which is to be trained upright as a leader, and the other stopped when it has made two or three pairs of leaves. When the leader has grown 6 or 9 inches, stop it again, pinching the side shoots also as is needed to secure the form desired—a pyramid being generally preferred. But you must not stop any of the shoots later than within six weeks of the time you desire the plants to be in their best flowering condition. As soon as the roots reach the sides of the pots and protrude through the bottom, shift the plants carefully without disturbing the roots into 6 and 7-inch pots, in which sizes they may flower. The pots must be clean and well drained, and the soil should consist of turfy loam with a fourth part of dry decayed manure or leaf soil; and if a twentieth part of bone dust can be added, all the better; crushed charcoal or oyster shells also form a good addition to the soil. Water carefully with tepid water, applying it only when needed, and then copiously. Keep the foliage scrupulously clean, either by syringing or sponging. Place the plants as close to the light as you can, but direct hot sun is injurious to them. During warm weather in June they may be placed in the open air, at first in a shaded place for a few days, then removing them to a position where they are only shaded from the sun from ten o'clock in the morning till four in the afternoon, sprinkling them frequently during hot weather and watering them freely. When the pots are filled with roots and the flower buds are visible, clear soot water given twice or thrice a week will be beneficial. Prune your Roses rather closely, cutting them back to the best eyes, and plunge the pots in the border. You do not, however, say whether they are Teas or Hybrid Perpetuals, nor for what purpose you require them.

PRINCE ALBERT APPLE (*G. C. S.*).—Some notes on this Apple will shortly be published in our columns, which will afford you the information you require.

BRUSSELS SPROUTS (*D. L., Dorset*).—In order to have fine plants and a heavy crop of Sprouts, as you desire, you must not lose any time in sowing the seed. If the ground on which you intend growing the crop is vacant and has been manured and dug or trenched, we advise you to draw shallow drills 2 feet 6 inches apart, and at every 2 feet in these drills drop a few seeds, eventually thinning out the superfluous plants, leaving one only where it is intended to be grown to maturity. The plants will then sustain no check by transplanting, and will be strong and fine in the autumn if the soil is good, and weeds are prevented making their appearance by the frequent use of the hoe.

VINE LEAVES SCORCHED (*H. D.*).—The "blistering and the appearance of fungus" have been caused by scorching, the action of the sun having ruptured the sap vessels of the leaves when the foliage was in a tender state. The foliage of Muscadine Grapes when the Vines are grown in heat is very liable to injury by the sun after a period of dull days. Your other Vines being healthy prove that the fault is not in the border; but you can scarcely expect they will continue healthy for many years if you allow them to carry thirty-five bunches to each rod. The fact that the Grapes did not colour well last year affords evidence that the Vines were overcropped, and you had better remove a considerable number of bunches so that those remaining colour well, otherwise your crop, heavy as it may be, can only be considered as a failure.

SYRINGING VINES (*J. T. S.*).—The Vines may be syringed up to the flowering period, when syringing should cease until the berries are fairly set, when it may be resorted to for a few times to clear the bunches of fallen anthers, &c., and in some instances is continued from this stage until the Grapes change colour, clear soft water only being employed. Some of the best Grape-growers do not syringe the Vines after the Grapes are thinned, the house being kept moist by damping every available surface two or three times a day, and watering copiously at the roots. Afford liquid manure to those in boxes at every alternate watering, or if the Vines are weak it may be applied each time, being given in a weak state. Young Vines cut back to two or three eyes should have the strongest of the resulting shoots retained, rubbing the others off, allowing the one retained to grow unchecked as far as the space at command will allow, and the laterals also.

CATTLEYA CITRINA (*A. M. B.*).—You have been rightly informed that this lovely fragrant flower requires a peculiar treatment, which if not given the plant will die. That treatment is in accordance with the habit of the plant in its mode of growth. The generality of even Orchids send their shoots upwards, but this species sends them downwards: hence it is necessary to humour it by fastening it on a log with the last-made pseudobulb underneath. So placed on the log, the plant appears to the uninitiated to be as it were turned topsy-turvy, or upside down. If grown in any other way the plant will not long survive such wrong treatment. In every other point of culture treat it the same as its congeners.

DARK ROSES (*Darky*).—Mr. George Paul considers that Reynolds Hole, Abel Carrière, and Prince Camille de Rohan would be in their order the

three darkest Roses, the blackish shading of the first named giving it the palm.

ESCALLONIAS INJURED BY FROST (*Robertson*).—We should cut away all the dead wood at once. You can readily determine by the appearance of the wood when cut how far it has been killed by the frost: if it is fresh and moist it is alive, if dry and discoloured it is dead. The Myrtles should be treated in a similar manner.

ARUNDO DONAX (*B. C.*).—That is doubtless the species to which you refer. It has been employed almost from time immemorial in Southern Europe for a great variety of purposes.

GERANIUM LEAVES SPOTTED (*W. E. K.*).—The plants have probably been too moist at the roots at some period of their growth, or the cuttings may have been taken from unhealthy plants. With healthy root-action and a warm but not too moist atmosphere the plants will probably improve; but any that are seriously affected we should cut down and healthy growth may issue. We never propagate from plants affected with the spot to the same extent as yours appear to be. Plants will often grow out of the disease when they are planted out in summer: if they do not do so they should be thrown away.

DENDROBIUM CAMBRIDGEANUM NOT FLOWERING (*J. L.*).—The plant is probably kept at too great a distance from the glass, and has not sufficient light so as to solidify the growth as it is made. It should only have sufficient shade to prevent scorching. After the growth is complete expose the plants fully to the light, and withhold water so as to afford complete rest, yet not allowing the pseudobulbs to shrivel during the resting period. A sudden check would not cause flowering, but is more likely to induce stunted growth.

FERTILISERS FOR POTATOES (*A. J. J.*).—As soon as the plants are fairly above the ground a dressing of one-third of nitrate of soda and two-thirds of superphosphate of lime applied at the rate of an ounce and a half per square yard will induce them to grow freely. Again a dressing of guano and superphosphate of lime applied just before earthing the plants, at the rate of about 2 ozs. per square yard, would be beneficial. The fertilisers should be applied during showery weather if possible, or just before rain, afterwards running the hoe through the ground as soon as it can be freely worked. A top-dressing of soot is also a valuable application for crops requiring the assistance of a fertiliser.

MILDEW ON STRAWBERRIES (*Subscriber*).—Mildew is much more prevalent in some districts than in others, and Black Prince is particularly liable to its attacks. The best remedy is to apply flowers of sulphur to the foliage as soon as specks of mildew are visible, of course not dusting the fruit. The plants have probably at some time been too dry at the roots, and this with a moist atmosphere would induce the spread of the fungus. Sulphur applied to the hot-water pipes will not injure the Vines unless the pipes are made excessively hot. Apply it to the return pipes first and note the effects. It may remain on the pipes throughout the season.

TABLE PLANTS (*A Young Gardener*).—The following twenty plants for table decoration were selected at an election of such plants at Wimbledon, and are placed in the order of merit:—Cocos Weddelliana, Aralia elegantissima, Pandanus Veitchii, Croton angustifolium, Dracæna terminalis, Dracæna gracilis, Cyperus alternifolius variegatus, Geonoma gracilis, Croton Johannis, Dæmonorops plumosa, Dracæna Cooperi, Adiantum cuneatum, Pandanus elegantissimus, Aralia leptophylla, Croton majesticum, Ananassa sativa variegata, Reidia glaucescens, Cyperus laxus, Caladium argyrites, Adiantum scutum. They were selected more from their usefulness than from their rareness or scarcity. They should be exhibited in 5-inch pots. The plants should be about a foot high, and in the best possible state of health and cleanliness.

INSECTS ON VINES — LEAVES SCORCHED (*P. M.*).—We have carefully examined the Vine leaves, which are very healthy, and find two kinds of insects on them; the one an aphis, the other thrips. The latter are the more numerous, but still they are not in sufficient numbers to do immediate harm. The yellow appearance of the leaves is not due to the insects, but is the result of a sudden return of sun after several days of dull weather—is, in fact, a form of scorching. You will perceive that the leaves most discoloured are those that are the most destitute of tissue, being somewhat flimsy, and are first injured near the margins, the stouter leaves being quite healthy. With early and careful ventilation, at the same time maintaining a genial atmosphere, the scorching will cease. In the course of a week or ten days, when the Grapes are set, fumigate the house moderately on two successive nights for a month. This will check the increase of the insects, and after the bunches have been thinned and the foliage is becoming firmer you may, if necessary, fumigate more strongly to destroy the insects. You have done right by removing the plants from the house: these you can syringe with tobacco water.

INSECTS ON FERNS (*A. S., Blackburn*).—The insect is a Curculio, and we can only suggest sedulous hand-picking as a certain mode of riddance. You might perhaps render the plants distasteful by syringing them with very much diluted paraffin, an eighth of an ounce to a gallon of water, and thoroughly mixed with the aid of the syringe. We cannot name the Rose from the imperfect flower; the plant appears very healthy, but the variety does not appear suitable for early forcing.

WELL SINKING (*Well*).—You are legally entitled to sink the well on your land, and are moreover quite justified in doing so, as, so far as we can judge from the plan, the public well will not be materially affected.

ERRATUM.—In the article on Ixias and Ranunculuses on page 286, the word "Scotland" in line 15 should read "Holland."

NAMES OF PLANTS (*D. W., Bristol*).—The Hyacinth is probably Charles Dickens—at any rate you can have a better variety of the colour for planting in your border than the variety we have mentioned. (*W. S.*).—1, Adiantum formosum; 2, Nephrolepis tuberosa; 3, Adiantum venustum; 4, Athyrium Filix-femina var? 5, Adiantum cuneatum; 6, Adiantum Capillus-Veneris; 7, Pteris serrulata. (*J. C.*).—1, Berberis vulgaris; 2, Cheilanthes hirta; 3, Leontodon Taraxacum; 4, Ranunculus Ficaria; 5 appears to be a Polypodium, but we cannot name it without fructification; 6, Bellis perennis. (*Newcastle*).—The specimens arrived much shrivelled, but we think it is Andersonia sprengelioides. (*A. B.*).—The Fern is Davallia elegans. We will examine the roots you have sent. (*Mrs. Pode*).—The Polygala is P. Dalmaisiana. The succulent plant appears to be Echeveria secunda glauca, and the other Eriostemon myoporoides, a New Holland plant, but the specimens were insufficient for accurate determination. (*M. M.*).—The large-leaved weed is Ægopodium Podagraria, the Goat-weed. We cannot name the other from such a crushed and imperfect specimen.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

THE FEEDING AND FATTING OF SHEEP.

WE have on several occasions referred to this subject incidentally in connection with the management of ewes and lambs, and also on the choice of sheep for the home farm. It is, however, our intention now to treat the fatting of sheep as separate from other subjects so nearly related as those we have named. Looking at the matter in all its bearings we see a number of operations not only in connection with the subject proper, but also respecting the land upon which the animals are kept and fed, as well as the seasons and climate, each of which has its effect upon the process of feeding and fatting. During the past twenty-five years great changes have been made, not only in the food given to sheep and the manner of feeding, but also in the quantities and mode of mixing the food. Regard has also been had to the value of food as exhibited by analysis, at the same time calculating the effect of soil, situation, and aspect upon the health and constitution of the animals. For the feeding and fatting of sheep at the present day to be made profitable and successful it must be attended with all the advantages which can be derived from great experience, vigilant supervision, untiring industry and foresight on the part of both master and shepherd. We shall treat this subject under separate divisions—viz., the fatting of sheep upon the heavy lands and also upon the light lands, together with some reference to grazing upon the pastures.

The first part of the subject applies principally to the heavy land districts of the western, northern, and midland counties; it will, however, be equally well-adapted to certain other districts throughout the kingdom, and notably the Wealds of Sussex and Kent, together with the strong soils of North Wilts and the strong red loams in various localities. The object of keeping sheep and feeding them to be sold as mutton is twofold—to make a profit upon the transaction, and to manure the land whereon the sheep are fed. There is only a trifling exception to the latter, that of house feeding, to which some practical allusions will be made before concluding the subject.

There are two principal points to be considered—the rotations of farming the land, and the choice of stock adapted to the locality in which the animals are to be fattened. In speaking of the first point it must be noted that some strong soils have for a long period been tilled with reference chiefly to the growth of cereal and pulse crops; but owing to the low prices prevailing for grain more attention will now be given to rotations, whereby the fallow will give way to the fallow crops, in order that sheep may be fed and fattened upon the land in the spring and summer months. As most of the heavy land farms contain a certain area of grass land the sheep will not be required at all times to be fed upon the arable land: this fact in practice is found to afford great advantages as regards change of food, &c., so desirable in the fatting of sheep. As the feeding and fatting of sheep in the open field is out of the question during the winter months upon cold heavy land, it will be necessary to provide for them a sufficient change and succession of fodder crops throughout the spring and summer by a rotation and course of cropping, which will not only abundantly provide food of good quality for the animals, but also crops which during their growth and consumption upon the land will ameliorate the soil and prove the best preparation for the succeeding wheat crop. To effect these desirable objects we propose the following rotation of crops—1st, Wheat half-seeded to clover in the spring, the other half tilled after harvest and seeded with beans or peas or both. 2nd, Clover and pulse crops. 3rd, Oats, wheat, or drege; one-fourth part of mangolds and some cabbages, and three-fourths of green crops—rye, trifolium, winter vetches, summer vetches, and tall rape mixed; the rye, trifolium, and winter vetches to be followed by early turnips, summer

vetches, and rape respectively; and the summer vetches by mustard to be fed off by sheep should the season prove favourable, or otherwise ploughed in as a preparation for wheat. In consuming this succession of crops, using some clover and pasture feeding at intervals if required, also artificial food, we not only provide for our sheep but afford the best preparation of the land for a wheat crop upon strong soils.

In referring to the second point—namely, the choice of sheep—we must bear in mind that no sheep will be required during the winter months, except perhaps a small number of tegs or lamb hogs to be held on for summer feeding. Our choice of sheep will therefore be dry ewes, tegs, or two-teeth wethers, as it is in very few instances that older wether sheep are to be obtained, and if they are they offer no extra advantages in feeding, except for consumption upon a home farm for supplying the establishment of noblemen or gentlemen. In selecting sheep for fatting regard must be had to the district in which the farm is situated, and as our remarks at the present will be in reference to stocking the heavy land we shall no doubt meet with various opinions from our readers upon the subject. We can have no better guide generally than to take particular notice of the stock most approved by the best farmers of the district, and make our selection of sheep accordingly. We find that in the northern, western, and midland counties that the long-woolled stock are most suitable; in the southern districts the Hampshire, Sussex, and west county down sheep are most approved, and the down sheep pay well for fatting, because they make the best price as mutton. Next to them we approve the Oxford and Shropshire downs, and we also find that where tegs of the first cross between the long-woolled and down sheep can be obtained they come fit for the butcher quickly, cut good heavy fleeces, and on account of their dark or mottled faces they stand next to the down sheep in value per stone of mutton. After having decided upon the breed of sheep to be fatted, and whilst buying in a stock for the summer feeding it is well to select for purchase two or three ages or conditions of sheep, so that they may not all be required to be sold at one time. We like to have some tegs and some wether sheep, the latter to come to hand for sale first, because the tegs when held on the longest continue to grow as well as fatten, and the earlier in the spring that provision can be made for them the better; as we always like to buy stock in their wool for summer fatting, and if purchase is delayed too long the wool costs nearly as much as it will be worth, whereas it should always be reckoned as part of the profit in summer feeding. If it is decided to buy some dry ewes for fatting they should be kept apart from the tegs or wether sheep, for the mixing of the sexes in the field is sure to disturb the habits of the tegs or wether sheep, and as quietude is one of the great points to be observed in fatting animals this is the chief reason why they should not be fed or folded together.

Some of the advantages to be found in feeding sheep of different ages and conditions consist in the practical fact that the stock can then always be adjusted to the food at command, and the farmer will have more power over the markets by having stock fit for sale should prices make it to his advantage at any period of the season. In case a sale was rendered obligatory by circumstances of food, &c., of the whole summer stock at one particular time, and the market price be against the seller, it may, and often has done, so depreciate the value as very much to diminish the profit expected from the fatting process. We must also here refer to the practice of buying sheep in a market or fair. We cannot advise the purchase of sheep which are very poor, for they cannot be worth the cost. As a case in point we many years ago undertook the superintendence of a home farm, and found the sheep had been comparatively starved for a considerable period, and we tried good feeding; but it was no use, we could not improve them after three months' feeding, and then sold them for what they would fetch as store sheep. We therefore in passing through a market or fair object to poor stock, but having decided upon the age and condition of stock suited to our requirements we buy them as cheaply as possible, and it is right to remember that stock considered a bargain may in the end turn out to be very unsatisfactory; it is also best to obtain a warranty of soundness if possible, as in the early stage of coathe or rot it is not easily to be discovered.

WORK ON THE HOME FARM.

Horse Labour.—There has been little if any delay in the tillage of the home farm during the past six weeks. The horse labour will still be engaged in planting potatoes where that work has not been finished. Some of the late strong soils are better for potatoes when not planted until the last week in April or first week in May. This applies especially to the later varieties, as these are generally more subject to the disease than the early varieties. There is a plan now recommended by a successful planter who has grown all his potatoes sound for ten years in succession—that is, to set them on the surface of the land, so that in the act of stetching the ground the plants should always be free from an excess of moisture at any period of their growth. As we have adopted this practice with advantage we will describe our method of ploughing, planting, &c. Instead of planting the sets under furrow as usual, we apply 4 cwt. per acre of Peruvian guano made fine and previously mixed with damp ashes. This being sown broadcast upon well-prepared soil, the plough in stetching, by throwing two furrows together, necessarily buries the whole of the manure in the middle of the stetches. The sets or plants of a small size are then planted with a setting stick by the women about 3 inches deep on the top of the stetches. In this way the plants come up very quickly, and as soon as they strike out roots they have the full and immediate advantage of the manures. In our first trial and experiment of this plan we had another portion of our land manured with dung from the cattle boxes applied between the ridges, which on being ploughed and reversed buried the dung in the centre of the newly-formed ridge, the potatoes being planted as above described. This we found in the result a great improvement upon the usual mode of planting under the furrow, and in finishing-off the work in hilling the potatoes, the earth being lifted to do this properly, leaves a trench or furrow between the hills sufficiently deep to lay the land dry at all times. This is the merit of the plan, for we have always found the disease most destructive to the crop in those parts of the fields where the water could not freely escape.

Where stubble turnips have been grown they will now be coming into flower in the south. We have often known the lambs do very well whilst feeding upon the leaves and flowers, when they are properly fed with trough food and good hay also. The turnip bulbs in such cases are rather tough, but when passed through the cutter, and meal added, they feed the ewes very well. When we have more of these turnips run up to seed than the sheep can eat in good time we remove a portion daily and give to the cattle, cutting the bulbs with Gardner's cutter, and passing the stems and leaves through the chaff-cutter, and when meal is mixed with them the young fatting cattle in the boxes improve greatly upon this food. When labour is available, and when it is required to get the land ready for the next crop, which is usually mangolds, we prefer to cut the stems and bulbs with the hook and turnip-chopper and plough in the whole. This is a capital preparation for mangolds where the land is kind and clean. After one ploughing only the land is worked fine, and the mangold seed drilled with artificial manure—1 cwt. of Peruvian guano, 2 cwt. of superphosphate, and 1 cwt. of nitrate of soda per acre; the manure acting together with the decaying turnip stalks which had been buried, makes an excellent provision for forcing-on the crop. In the same way stubble turnips may be made a preparation for the barley or oat crop.

Manual Labour.—Employment upon the home farm will now be various. If any timber is required for repairs, &c., now is the time to cut if it is desired to take off the oak bark; the cutting and stripping will employ the men for a short time, the women setting up the bark in ranges to dry. This work they can do as quickly as the men. All work relating to the fences and draining the land should now be attended to; also the emptying places of all drains should be examined, whether in the meadows or in the ditches between arable land, because it is more difficult to open-out and clear the outlets of drains after the grass and weeds in the summer have grown up together. Couching, carting, and burning the couch into ashes will now be going on, but as soon as sufficient ashes are burnt for drilling with manures for the root crops remaining the couch may be carted away to heap and be left to decay; or if it is spread on meadow or pasture just as it comes from the field, and a few days after the chain harrow is run over it, the application will do much good.

The shepherds will now have their flocks in the water meadows, feeding there at daytime and returning to the arable land at night time to eat rye, swedes, or mangold as the case may be. The women now may be employed in picking stones and sticks off the grass land in the fields as well as the pastures, but where the stones are large the best way is to break them with iron hammers instead of picking and carting off the land. The dairy cows have for the most part calved, and as the grass is rather late this year the feeding in the stalls must be continued for a little longer before the cows can go out to grass, except in some particnlar pastures where the grass is early, or where the water meadows have been dried off so as to make the ground firm enough for cattle feeding.

TURKEYS.

We long hesitated about the introduction of Turkeys into our poultry yard. We longed, as enthusiasts about birds of all kinds, to keep or at some time to have kept and to understand every race of poultry both useful and ornamental. What in the feathered creation is more magnificent than a fine flock of Turkeys either displaying their gorgeous colouring in the sun or strutting through woods and fields in quest of food? We anxiously inquired of fanciers who had kept them among other poultry of their character as to temper, but received somewhat contradictory answers. At last we determined to try them for ourselves, and will relate our experience, as it may be useful to others. We had been warned that Turkeys dislike and persecute any strange bird, so, not being sure that a newly-bought pair might not attack as aliens all the

exhibition fowls, we began with a sitting of eggs from a Bronze American stock: five or six years' subsequent experience has taught us that newly-arrived Turkeys need not be feared; they are on their good behaviour, and until well settled do not molest anything. It is well to know this, for poults reared under a common hen do not get on so well as under their proper mother; they need her guidance in feeding and her greater warmth at night long after a hen usually forsakes her brood.

Young fanciers are, we believe and hope, ever being added to the number of our readers, so for their benefit we will begin with some very elementary hints about Turkey management. A large number of hens, fifteen or twenty, may be allowed to one cock, but few people will require the produce of more than four or five. Arrangements are often made to send hens for a short time before they lay to where a good cock is kept; this is sufficient to ensure the fertility of the eggs, and the trouble and expense of keeping a huge male bird all the year round is thereby avoided. Old henwives assure us that as Geese regulate the commencement of their laying by the feast of Candlemas, so Turkeys always lay their first eggs on Good Friday, regardless of the moveability of the fast. We have, however, generally found them begin to lay from March 15th to the end of the month. For some time beforehand the hen wanders about uttering discontented notes, and scratches holes in rough grass or bushes; her nest is seldom difficult to find, for vegetation has not advanced much at this season, and she lacks the wit of the Guinea Fowl to conceal it. Unlike the latter bird she is not easily disturbed, and as long as one egg or a lump of chalk is left in the nest she will lay there almost daily, fifteen to twenty-five eggs in all. It is not a bad plan to put the first six or seven under a large Cochin or Brahma hen. The Turkey will probably lay quite enough more for herself, and the hen will do well for the poults in their earlier days. They should be used to be cooped near the Turkey, and will then follow her and her family as their foster-moster leaves them.

We have found our Turkeys somewhat peculiar when first becoming broody. For several days they sit upon the nest, but go to roost at night; this does not seem, however, to have any ill effect upon the eggs, even if left in the nest. We generally take them away daily, and as soon as the hen sits continuously move her indoors; she is again at this time extremely unlike the Guinea Fowl, which will not endure to be touched on the nest. We have always found the Turkey hen sit contentedly wherever she is placed. Our own have for several years set in large Turkey exhibition pens. They are daily lifted off the nest, and food and water is offered them; but in the earlier days of their incubation they generally rush back at once, and can hardly be induced to eat. One of ours which sat out of doors among heather was not known to come off the nest more than half a dozen times in a month. The Turkey will cover from twelve to fifteen of her own eggs. It is well to test them before a light after a week, and if many are clear (a very rare occurrence) to make up the number with hens' eggs, which will then hatch at the same time as the Turkeys. Some breeders always mix them under the idea that the chickens "teach the Turkey poults to peck." This sounds absurd, but we really believe there is some truth in it. One would expect that the Turkey hen with her long legs would be clumsy, and apt to crush eggs and chickens; but she is not so, crouching down with the utmost care and circumspection as she gets on to the nest. We have had but one which crushed chickens; this she habitually did from fussiness and over-anxiety as they hatched. A careful poultryman will mark such a bird, and not let her sit again.

Turkeys hatch after about twenty-eight days' incubation. The poults should not be left so long as chickens without food. After twelve hours they must be lifted out of the nest and fed. In their early days they are the most provokingly listless of creatures, and will hardly take the trouble to keep themselves alive. Bread crumbs and hard-boiled egg chopped up should be dropped just before their eyes. They will peck up the biggest pieces to save themselves the trouble of pecking often, and their beaks should be dipped in milk. We had heard much of their delicacy before we tried them ourselves, and fancied that the popular idea about it must be absurdly exaggerated. We had reared with ease almost every species of poultry and waterfowl, and expected to find that the reputed large mortality among Turkey poults was only the result of carelessness and stupidity. Experience has taught us that though it sometimes may be, it is not by any means always so. The Turkey hen must have a large coop in which she is not cramped, and should if possible be put under cover at first. The most perfect situation is in a light dry shed opening on to grass. The door can then be shut and the poults confined whenever it rains, and at other times they can run out and get plenty of fresh green food, their favourite and natural diet. For weeks they continue extremely unlike other chicks, which if well are ever busy and happy. Turkey poults run about in the most feeble manner, and to an inexperienced eye look as if ever on the point of dropping down. They should be fed very frequently on perfectly fresh food. They will not touch anything stale or sour. They are natives of regions where vegetation is rank and luxuriant, and a large portion of their food should therefore be green. They are not slow in knowing their feeder and the hour of their meals. We take a bowl of bread and milk to our birds after breakfast, and they will come a long way with soft plaintive cries to meet us and get their second breakfast, for they have long before had their first of oatmeal. They quickly pick out the bread, and we leave them the milk to drink at their leisure. For their green food we give dandelion, lettuces which run to seed, and the thinnings of the onion bed, all of course chopped. A considerable quantity of this food may be prepared in the morning, and if kept cool and covered will last fresh through the day. We have a lot thus prepared and put in a covered pan near the coop. Whenever we pass near a handful is thrown to the poults and quickly disappears. Their growth under this *régime* is surprising, and their second darker feathers quickly begin to push through the lighter covering. They are very susceptible of cold from showers, though hardly to such an extent as we are often told. If chilled they sicken and refuse to eat. On an average we have not with much care succeeded in rearing to maturity more than half those hatched. With fowls the fact that a bird refuses food is generally a sign that it does not require it, and chickens which will not eat may be considered beyond cure. Far otherwise with Turkeys. As long as there is life in them there is hope; the slightest malady dispirits them, and they must be at once taken to a warm room and fed constantly by hand with meal, bread, and milk. We have known them recover completely after seeming hopelessly and helplessly wretched for days.

Gradually their strength increases, the second broader feathers spread till they cover them, and their long tails grow; next the red appears in their wattles, and the critical time may be considered over. Their daintiness now passes off, and a season of wondrous appetite succeeds. It is probably hot weather if they have been hatched early in May—the coop becomes airless and unwholesome, and some night the mother betakes herself to the trees. There we let the brood follow her. This is the time of growth and hardening; they learn to brave the climate in summer, and by winter they are so hardy that we have had them through the sharpest frost and keenest wind roost in exposed positions without the slightest detriment. All care of them must not, however, be at once relaxed; they still require a dry shed for occasional shelter, and during the cold storms of rain we sometimes have in August and September we have known it necessary again to bring smaller and more delicate birds indoors, tempting their appetites with bread and milk. From the time that their tails first appear till they are eight months old their growth is prodigious, and all through this period they consume enormous quantities of food, a large portion of which should be vegetable, otherwise the cost of their keep will make them a very expensive luxury.

During this season they are not unfrequently troublesome with smaller poultry; the brood keeps closely together, and if one poult has any disagreement with another bird all make common cause to resent the supposed affront, and fall upon the unfortunate victim—screaming, jumping, flapping their wings, and pecking until in terror and bewilderment it crouches down, and if not quickly rescued is probably trampled to death.

We will in another number proceed to give our ideas as to how far Turkeys can be made profitable stock, and also some account of our experience of the different varieties.—C.

VARIETIES.

The International Agricultural Exhibition in London.—The entries of implements, machinery, &c., for this Exhibition have now closed. They are on a very extensive scale, and far larger than those of any agricultural exhibition yet held. At the Royal Agricultural Society's great Liverpool Show in 1877, 395 exhibitors displayed their productions in 15,796 feet run (20 feet wide) in the implement yard. Last year at Bristol 15,546 feet were occupied by 405 exhibitors, while at the forthcoming Exhibition 24,002 feet have been applied for by 651 exhibitors. Provided the various rows of sheds were placed end to end the exhibits not worked by machinery would be over three miles in length; the machinery in motion, or implements actually worked by steam engines or other means, would extend considerably more than a mile; while nearly half a mile will be devoted to seeds, roots, manures, feeding stuffs, and similar articles. The entries for British and foreign horses, asses, mules, cattle, sheep, pigs, goats, butter, cheese, hams, bacon, fresh and preserved meats, bees, cider, and perry do not close until the 1st of next month, but up till the present time the applications from intending exhibitors in these departments are understood to be very numerous, so that there is every probability that the 100 acres which comprise the site of the Exhibition will not be in excess of the actual requirements. £13,000 are offered in prizes.

—— At Bagshot Park, the new residence of the Duke of Connaught, a new potato planter, manufactured by Messrs. G. W. Murray & Co., Banff Foundry, Scotland, was recently tried in the presence of a number of experienced gentlemen in the district, and

did its work in a most satisfactory manner. One of the most important features in this machine is its simplicity. There is a round hopper placed upon two wheels, from the axle of which an endless chain formed of a series of cups passes up through the hopper, each cup taking a potato as it passes through. The blanks and doubles were found not to exceed two in a hundred, and sometimes were as low as four in three hundred. The form of the cup in a great measure accounts for its success, particularly a peculiarly formed joint in the bottom of every cup, whereby a tongue rises in the bottom of the cup at every turn, thereby emptying the cup of any dirt or clay which might tend to make a potato stick in it. Those who grow potatoes on a large scale, and have now a difficulty in getting sufficient labour in the planting season, are to be congratulated upon the advent of this machine, which has been awarded the gold medal by the Highland and Agricultural Society of Scotland.—(*Irish Farmers' Gazette.*)

—— UNDER the heading of "Natural History for April," the *Daily News* observes that the male nightingales have begun to arrive, and one was heard singing at Chigwell on the 14th; the hen nightingales are not expected before the 22nd at the earliest. Sand martins arrived on the 7th of April. A few swallows have been seen in the south of England, Devonshire, the Isle of Wight, &c. Between the 1st and the 7th have been seen wheatears, chiffchaffs, and willow wrens; and wrynecks on the 8th close home, but they are poor in call. The cuckoo was heard on the 12th. Blackcaps and whinchats heard at Hampstead on the 14th. The hatch-out of young thrushes this year has been extraordinary. Blackbirds are not so forward as the thrushes. Redpolls, greenfinches, and hawfinches are now arriving. The flight of linnets is now over. Vegetation and insect life is more forward near London than elsewhere; this is probably on account of the rich and highly cultivated land which breeds insect food.

—— THE Holstein breed of cattle appear to be greatly esteemed in America for dairy purposes. The animals are stated by the *Rural New Yorker* to be large, finely formed, wonderfully symmetrical, fully developed, uniform in colour and general appearance, and are the most abundant milkers known. In proof of the value of the breed it is further stated that Holland exports annually 32,000,000 lbs. of butter and 61,000,000 lbs. of cheese, which for so small a country is truly remarkable.

—— A COW belonging to Mr. M'Culloch, Fortrie Grange (says the *Banffshire Journal*), a small but very proportionate animal, has in the course of four years had no fewer than ten calves. A case of this kind is very rare, if indeed it has a parallel. When two years old the cow had one calf, when three years old she had three calves, when four years old she had four calves, and when five years old she had two calves. None of the calves have lived, and one died when only a few days old. The cow fostered all her offspring, which shows that she must be a good milker.

—— ANOTHER numerously and influentially attended meeting in connection with the Hertfordshire Bee-keepers' Association was held on Friday last in the Town Hall, Rickmansworth, Lord Ebury in the chair. The Rev. Herbert Peel spoke upon the objects of the Association, and Mr. Cheshire delivered a lecture on the "Principles Involved in Profitable Apiculture" in a manner which was both scientific and popular. The questions at the close showed the deep interest that had been awakened. These successful gatherings and admirable lectures seem to be kindling new life amongst the bee-keepers of Hertfordshire, and certainly put all interested under obligations to the Rev. Herbert Peel, to whose energetic and able management they are due. The next meeting will be on the 26th inst. at Hertford at 8 P.M. Subject of lecture, "The Relation of Bees to Flowers."

BRITISH BEE-KEEPERS' ASSOCIATION.

THE first quarterly Committee meeting for the reception of representatives from county Associations was held at the Board room of the National Chamber of Trade, 446, Strand, on Wednesday, April 16th. Present, Mr. T. W. Cowan in the chair; the Rev. George Raynor, Messrs. C. N. Abbott, F. Cheshire, R. R. Godfrey, J. Hunter, J. M. Hooker, W. O. B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Secretary). The following county representatives were also present—viz., Capt. Campbell and Mr. F. H. Lemare for Surrey; the Rev. Canon Kewley and Rev. F. C. J. Jenyns for Hertfordshire; and Mr. Holloway and Mr. Bourne for Lincolnshire. Several of these gentlemen took part in the proceedings, and offered suggestions upon the points which they heard discussed, to which this Committee gave their attention and consideration. The Secretary reported that, besides having received letters from the Secretaries of the Shropshire and Dorsetshire Associations regretting that owing to the distance from London their representatives were unable to be present, he had also received a letter from the Secretary of the Devon and Exeter Association, conveying the following resolution passed at their last meeting, which was read as follows:—"That the Secretary be requested to write to the Secretary of the British Bee-keepers' Association, stating that this Committee is not quite clear on the point of responsibility. By the word 'affiliation' would county Associations in any way be responsible should at any time the central Association be in any pecuniary difficulty?" In reply to this the Committee passed a resolution declaring that they did not for a moment expect any county Association to be responsible for the debts of the British Bee-keepers' Association, and that the Central Association would not be responsible for the debts of any county Association. The Nottinghamshire Association being but newly formed were not in a position to nominate representatives to attend this meeting, but hope to be sufficiently organised to be represented at the next quarterly meeting. The principal business occupying the Committee's attention was the formation of rules and regulations for the management of the Association's annual Show, to be held at the gardens of the Royal Horticultural Society on Tuesday, July 22nd and two following days.

A conversazione took place at six o'clock, when in addition to those already named as present at the Committee meeting, the company included Mr. Frank Buckland, Dr. Ogle, Dr. Hogg, Mr. H. Jonas, Mr. G. Minson, Mr. Walker, Mr. Willard, Mr. Oldham, Mr. Lyon, Mr. Morris, Mr. Clark, &c. The Rev. Canon Kewley was voted to the chair. The subject for discussion was "The Abdominal Distension of the Hive Bee during Winter, and the Means for Checking the Same," opened by Mr. Frank Cheshire, A.C.P., F.S.A.

The lecturer introduced his subject by pointing out that the bee had provided for it a perfect and complete diet table in honey and pollen. The former was a hydro-carbon, and might be practically regarded as consisting of inverted sugars, and as such supplied heat and force. The latter (pollen) was highly nitrogenous and rich in phosphorus, and being a tissue-former entered largely into the food of the grub, and was also a necessity for the adult bee in order to replace wear and tear of muscle and nerve. The saccharine matters of honey were not truly digested but were absorbed into the fluids of the bee, and were then brought into contact with the air through the marvellously delicate walls of the breathing tubes and air sacs. The air was admitted to these tubes by means of five spiracles on each side of the abdomen, and two on each side of the thorax. The oxygen entering into combination with the elements of the sugars converted them into carbonic acid and water, and no residual matter remained to be carried off by the bowels, so that thus far it was true that the production of heat by the oxidation of honey contributed nothing to abdominal distension. If, continued the lecturer, bees clustering without brood during winter be surrounded by air of moderately low temperature they will remain in an absolutely restful condition. The atmosphere will slowly pass up through their mass, and a gradual but constant in and out-flow through their spiracles will take place in virtue of the law of osmosis without any muscular effort on their part. The slight oxidation of the sugars within their bodies will develope sufficient heat, while as this action is rather chemical than vital, nervous and muscular waste will be practically nil. But should the temperature fall considerably a more rapid introduction of air into the breathing tubes becomes necessary to keep up the required temperature of the cluster, and to effect this the bees commence a pulsating movement of the abdomen, and in severe cold a vibration of the wings also. Inspiration and expiration now occasion muscular and nervous wear, and the consumption of pollen to replace the loss. The first tends to abdominal distension by giving waste to be carried off by the urinary tubes, the second matter which is the refuse of digestion. The lecturer illustrated his point by a striking experiment. He had a tube containing carbon and lead in atomic division; when the cork was drawn the contents of the bottle gradually united with the in-flowing air and became warm, but now some of the powder was poured out when it immediately inflamed, showing that the contact of more air increased the temperature.

Very severe cold long continued would exhaust the saccharine matters of the bee fluids, and perhaps render the stores so icy that it would be impossible to get access to them. In this case the bee really obtains material for heat-forming by wearing down through muscular exertion the tissues of its body. The lecturer adduced as an illustration the restlessness of carnivorous animals in confinement, their food being all tissue-forming. This restlessness is merely the instinctive action of the animal in wearing down its own frame so as to supply matter for oxidation. "A starving sheep," says a great physiologist, "is a true carnivore," it feeds on its own flesh; and so a starving bee feeding on itself is really carnivorous, while waste products are rapidly accumulated in the bowels. It is this condition which leads on certainly to disease. Such bees must die unless a change comes, and then they are found in vital exhaustion, with reduced muscle and nerve, while they are weighted inordinately with effete products. Thus incapable of flight they crawl from their hive mouth and soil themselves as they slowly lighten the abdomen without taking wing. The lecturer explained that normally alvine discharges could only take place during flight, because then only were the air sacs fully distended, and this braced-up the abdominal muscles, and gave them expelling power as they were contracted.

The lecturer summed up by showing that brood-raising, con-

sumption of nitrogenous food, nerve wear, and muscular action, all added waste matter to the bowels. As means of prevention he enforced the need of keeping hives dry, making the walls non-conductive of heat—properly ventilating; and recommended keeping bees during winter to a small number of well-stored combs in the manner that had been so successfully done by Mr. Cowan.

A very lively and instructive debate followed, in which the Chairman, Rev. H. R. Peel, Mr. C. N. Abbott, Mr. J. Hunter, Mr. T. W. Cowan, Mr. W. O. B. Glennie, and Mr. S. G. Baldwin took part. A vote of thanks to the Chairman and Mr. Cheshire closed the proceedings.

A beautiful collection of early spring flowers from which bees obtain honey were exhibited upon the table. These were sent to the meeting by Mr. W. Ingram, head gardener to the Duke of Rutland at Belvoir Castle.

FEEDING BEES.

We have so many inquiries how best to effect this that we extract from our "Bee-keeping Manual" directions that will reply to them all:—The bees are beginning to bestir themselves when the sun shines warm; and inexperienced bee-keepers are apt to think that their stocks are now past danger, and so take no more care of them. But the truth is, that the early spring months are the most dangerous of all; many stocks that have stood the winter die in the spring, which a few ounces even of food would prevent. There is nothing to be gathered in the fields till April, and in cold late seasons not much before even May. Stocks should be watched well in spring, and weak ones fed liberally. As soon as they begin to stir a little food should be given them every other day, or thereabouts, until they refuse to take it, for they will neglect the food given them as soon as they can gather honey. A good mode of giving food to bees in a common straw hive is to put it into a dinner-plate, cover it with a piece of writing paper thickly perforated, and place it under the hive; but should there not be sufficient room for the plate without touching the combs, the hive may be raised upon a wooden hoop, the exact size of the hive, and about 2 inches deep, or upon a piece cut from the bottom of an old straw hive. The food must be given after sunset, and the plate removed by sunrise the next morning. The entrance must be stopped while the food remains in the hive; a piece of soft paper answers remarkably well for this purpose.

Barley-sugar is a convenient form of food for bees. They will take it before anything else that is offered to them; and the rapidity with which they dissolve it is quite surprising. It may be given either at the top of a hive, where there is an opening, by tying half a dozen sticks together and covering them with a box or small hive, or even with a flower pot, or at the bottom, as in the common straw hive, by pushing a few sticks in at the entrance, for unlike liquid food, it does not attract robbers nor cause fighting, although given in the daytime. It is certainly most convenient to be able to push a few sticks of barley-sugar under a weak hive, and to know that by so doing they are made secure from want for a time. The idea of expense may be a consideration with some persons at first seeing barley-sugar recommended for this purpose; but upon inquiry it will be found that it may be purchased for less than 1*s.* per lb. and it may be made for 6*d.* When liquid food is used it is carried down by the bees immediately upon its being supplied and stored in the combs, and the proprietor has no means of knowing at what time the store is exhausted and a fresh supply required; but it is not so with barley-sugar, for whilst a morsel remains, which may easily be seen, it is certain the bees will not die of want. The best method of supplying it is at the top of the hives or boxes. By tying a dozen sticks of it together, and, after opening the hive at top, placing the barley-sugar over the opening, covering it with a garden pan or a flower pot; and just before it is all consumed give a fresh supply in a similar way. Persons generally are apt to imagine that as soon as a few blossoms make their appearance in the spring their bees will not want any attention, which is a very great mistake, as many a young apiarian has discovered both to his cost and disappointment; for during the months of March and April greater care is required in feeding than at any other time, for the population is then rapidly increasing, and in a wet and cloudy season no supplies whatever can be obtained but by artificial means.

To Make Barley-sugar.—Put 2 lbs. of loaf sugar into a saucepan with half a pint of water and two spoonfuls of the best vinegar; put it on a gentle fire, let it boil till the syrup becomes so thick that the handle of a spoon being dipped into it, and then plunged into cold water, the syrup upon the handle is found to be quite crisp; when this is the case it is sufficiently boiled. Having an earthen dish or marble slab in readiness, well buttered, pour the syrup upon it, and when sufficiently cool to handle clip it with scissors into strips the size desired. The process of boiling takes about twenty minutes.

OUR LETTER BOX.

Food for Fowls (*Lady M.*). — For five hens and a cock of the large kinds the following would be a good week's allowance:—5 lbs. of barley-meal, 10 lbs. of potatoes boiled and mashed; 7 lbs. of oats bruised, 3 lbs. of rice boiled, 3 lbs. of bran scalded. They should have their food three times a day. The barleymeal, potatoes, rice, and bran should be mixed together, and 1½ lb. given to them morning and evening, and 1 lb. of the bruised oats in the middle of the day. The supply of green food may be without limit.

Belgian Hare Rabbit (*H. S.*).—The Belgian Hare should possess a large bony frame, well proportioned, but slightly inclined to be lengthy; the head of fair size, and the face long and nose sharp. The colour should resemble that of the Hare—*i.e.*, it should be of a brown grey colour, or more correctly speaking a red grey. The animal is always of one colour, though of course the shade will vary. The back and rump will be darker than the sides, and this may be considered an advantage rather than otherwise. The under parts will be much lighter, in some cases approaching pure white. However this may be, it is imperative that there should be no white visible when the animal is either standing or reclining. If there be any it will most decidedly destroy the animal's chance of success at any show. The legs, in accordance with the shape of the body, should be firm and well set. In colour the outsides should be grey, and also the insides up to the first joint; above this the colour is generally lighter, and sometimes almost white. Neck long and of a uniform grey colour. The head and face is also of this colour, the throat being generally a trifle lighter than the face. Ears long, but quite upright; they are of a dark grey shade, and there is a black streak going up one side. This streak is very important, as both showing off the animal and indicating breed.

English Farm Records (*J. D. L.*).—We recommend you to buy the Journal of the Royal Agricultural Society of England, second series, vol. xiv., part ii., no. xxviii., price 6*s.*, sold by John Murray, Albemarle Street, London, being a Memoir of the Agriculture of England and Wales, prepared under the direction of the Council of the Royal Agricultural Society of England, for the International Agricultural Congress, Paris, 1878.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. April.	Barometer at 32° and Sea Level.	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 16	29.539	38.6	37.7	N.E.	41.4	45.8	36.8	64.2	35.3	—
Th. 17	29.637	45.0	41.0	W.	41.0	52.7	31.6	109.2	27.2	0.030
Fri. 18	29.893	41.8	38.0	N.W.	41.1	48.2	32.4	97.8	28.2	—
Sat. 19	29.920	44.0	41.0	S.S.E	40.9	52.1	30.0	97.9	26.2	0.071
Sun. 20	29.442	42.2	41.0	S.E.	40.0	55.4	29.5	98.0	35.1	0.384
Mo. 21	29.458	39.7	37.9	N.	42.1	45.4	36.8	60.0	36.1	—
Tu. 22	29.587	44.3	40.0	N.E.	41.8	48.1	31.6	75.0	27.2	0.042
Means	29.637	42.2	39.5		41.2	49.7	33.0	86.0	30.8	0.527

REMARKS.

16th.—Cold wet morning, brighter afternoon, with a gleam of sunshine; fine evening.

17th.—On the whole fine and bright, but occasionally very gloomy, with one for two showers.

18th.—Fine bright morning, but a little dull in afternoon; evening fair; night very cold.

19th.—Thick rime in early morning and rather foggy; morning dull, but afternoon and evening fine and bright.

20th.—Very wet morning, foggy and dark; cleared off by 1 P.M., and was bright with a little sunshine till 4 P.M., when heavy clouds came up and rain commenced again; it ceased at 5.30; evening fine.

21st.—Dull all day with cold wind, a little sunshine between 5 and 6 A.M.; cloudy evening.

22nd.—Fine, with bright sun in early morning, afterwards very foggy though the sun was dimly visible; clear about 1 P.M., but the afternoon cloudy; heavy shower at 3.30; evening fair, and fine clear night.

The week has on the whole been dull and cold, although most of the thermometric means are slightly higher than those of last week. The mean of the barometer readings is rather lower than last week.—G. J. Symons.

COVENT GARDEN MARKET.—APRIL 23.

No alteration, market remains the same. New Grapes rather in demand, old samples being now off the market.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples	½ sieve	2	0	to 6	0	Melons	each	0	0	to 0	0
Apricots	dozen	0	0	0	0	Nectarines	dozen	0	0	0	0
Chestnuts	bushel	12	0	16	0	Oranges	⅋ 100	4	0	12	0
Figs	dozen	0	0	0	0	Peaches	dozen	0	0	0	0
Filberts	⅋ lb.	0	9	1	0	Pears, kitchen	dozen	0	0	8	0
Cobs	⅋ lb.	0	9	1	0	dessert	dozen	3	0	8	0
Grapes, hothouse	⅋ lb.	2	6	8	0	Pine Apples	⅋ lb.	2	0	4	0
Lemons	⅋ 100	4	0	8	0	Walnuts	bushel	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes	dozen	2	0	to 4	0	Mushrooms	pottle	1	6	to 2	0
Asparagus	bundle	6	0	12	0	Mustard & Cress	punnet	0	2	0	0
Beans, Kidney	⅋ 100	1	0	1	6	Onions	bushel	2	6	4	0
Beet, Red	dozen	1	0	2	0	pickling	quart	0	4	0	0
Broccoli	bundle	0	9	1	6	Parsley	doz. bunches	2	6	0	0
Brussels Sprouts	½ sieve	2	0	4	0	Parsnips	dozen	0	0	0	0
Cabbage	dozen	1	0	2	0	Peas	quart	0	0	0	0
Carrots	bunch	0	4	0	8	Potatoes, new	⅋ lb.	0	6	1	0
Capsicums	⅋ 100	1	6	2	0	Potatoes	bushel	3	6	4	0
Cauliflowers	dozen	3	0	6	0	Kidney	bushel	4	0	5	0
Celery	bundle	1	6	2	0	Radishes	doz. bunches	0	0	0	0
Coleworts	doz. bunches	2	0	4	0	Rhubarb	bundle	0	0	0	6
Cucumbers	each	0	6	1	0	Salsafy	bundle	0	9	1	6
Endive	dozen	1	0	2	0	Scorzonera	bundle	1	0	0	0
Fennel	bunch	0	3	0	0	Seakale	basket	2	6	3	0
Garlic	⅋ lb.	0	6	0	0	Shallots	⅋ lb	0	3	0	0
Herbs	bunch	0	2	0	0	Spinach	bushel	2	6	4	0
Leeks	bunch	0	2	0	4	Turnips	bunch	0	2	0	4

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 1—7, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age. Days.	Clock after Sun. m. s.	Day of Year.
1	TH	Linnean Society at 8 P.M. Royal Society at 8.30 P.M.	61.4	39.2	50.3	4 34	7 20	1 16	2 12	10	2 59	121
2	F	Royal Institution at 8 P.M.	62.7	39.1	50.9	4 32	7 21	2 40	2 38	11	3 6	122
3	S	Valisnerius born, 1661.	62.4	42.2	52.3	4 30	7 23	4 6	2 44	12	3 13	123
4	SUN	3 SUNDAY AFTER EASTER.	62.4	38.5	50.5	4 29	7 25	5 36	3 1	13	3 19	124
5	M		62.9	39.0	50.9	4 27	7 26	7 9	3 22	14	3 25	125
6	TU	Zoological Society at 8.30 P.M.	62.3	38.5	50.4	4 25	7 28	8 41	3 49	○	3 30	126
7	W	Society of Arts at 8 P.M.	60.3	39.4	49.8	4 23	7 29	10 4	4 26	16	3 35	127

From observations taken near London during forty-three years, the average day temperature of the week is 62.4°; and its night temperature 39.4°.

CAMELLIA CULTURE.

AMONGST greenhouse plants the Camellia is a general favourite for decorative purposes, and its blooms are invaluable for bouquets and ladies' hair, and are sought after for the ornamentation of churches, especially the white varieties. The blooms are the more valuable when we consider the time of year they are produced, and how easily a supply can be maintained over a long period. To bring the Camellia early into flower, say in September, is not the work of a season, especially if the plants have produced blooms late the year before. Under such conditions they must be started earlier into growth for a few seasons until they produce blooms naturally in September. This system of growing the plants must be adopted if early blooms are required. Camellias will not endure excitement caused by strong dry heat in the latter stages of development; they can be pushed on rapidly while making their growth, which is the best season to do the work. The flower buds in the majority of cases fall off if the plants are over-excited by trying to force them into bloom. Retarding can be accomplished with ease, provided the growth of the plant is made late in the season, and they are then placed in a house with a north aspect.

The Camellia is principally propagated by grafting in August on the old single variety C. japonica, which is struck from cuttings either inserted in close frames, or under hand-glasses, in early autumn when the wood is ripe. After the cuttings are rooted they should be potted in small pots and allowed to become thoroughly established before the operation of grafting is commenced. This can be done when the wood that is intended to be used for scions begins to turn brown and is sufficiently ripe. The mode of grafting adopted is side grafting. The stocks should have the top cut off, at the same time leaving sufficient leaves to draw the sap above where it is intended to graft them; the lower portion of the stock should be made clear of leaves and branches. In performing the operation the stock should be cut in a downward direction about three-quarters of an inch in length, and the scion should be so cut as to fit well with the cut portion of the stock. The scion must be made secure with worsted, and then well rubbed over with grafting wax, then place the plants in a close warm frame. While in this position they should be shaded from strong sun, every attention being paid to watering and dewing the plants over with the syringe. The grafting is not the most particular item, the after-treatment is most essential to insure success. As soon as the stock and scion are well united the plants should have more air, and care must be exercised that they are gradually hardened for removal to a house or pit where it is intended to winter them. We have occasionally seen them kept in heat through the winter, and in other cases treated similarly to the general stock of young Camellias; this latter system we think best, as the plants start better into growth the next season.

The bottling system of grafting can be carried out if deemed necessary, but this would not do where a large quantity of young plants had to be produced; it is very good where the object of the cultivator is to work different sorts on a large plant against a wall or in a conservatory, or any structure where it is intended to increase the number of varieties by working them on others.

Camellias, like Azaleas and other plants, are now sent from the Continent in large numbers, otherwise more would have to be worked at home, especially in these days when the plants are in so much request both in large establishments and also in gardens of moderate pretensions. We do not wonder at this when we consider the plant's hardiness, easiness of culture, and adaptability with judicious management to producing beautiful flowers over a period of nine months—from September until the end of May.

We question if plants worked on the Continent are so good as those grown at home. The former do not start freely into growth, but remain in a stunted condition for a very long time: even in the same house and under the same conditions they will not grow like home-worked plants. We have seen both kinds side by side treated exactly alike, and the home-grown plants showed a marked superiority over those that had been imported.

After the young plants have passed the winter they will be ready by the end of February or beginning of March to have the stock cut off close to the scion. As soon as the graft shows signs of growth the plants should be transferred into 4 or 5-inch pots; they will make two or three shoots, and when well grown and properly treated will form flower buds the first year after being grafted. The second year the plants under good management will produce five to seven shoots, and they will year by year continue to make rapid progress.

The Camellia in all stages of its growth enjoys liberal supplies of water overhead with the syringe and at the roots; nothing sooner than dryness at the root and in the atmosphere will make their flower buds fall prematurely. One important point is, that whether in a pot, tub, or planted out, good drainage should be given, which is essential to success. Although the Camellia is hardy in some parts of the country it would not be advisable to treat it as such in the north or in exposed situations. It will stand well in a cool house all winter without any fire heat, yet while making its growth it enjoys a little warmth, and nothing is better after the plants once start than to keep the house close with plenty of sun heat until the growth is completed; and instead of admitting abundance of air, plenty of water should be syringed over the plants about the stages and the floors of the house. When the growth is completed air should be admitted freely, as this is necessary to prevent the plants from making a second growth and to insure a good set of flower buds, which is certain under this treatment. These remarks apply to plants that are established and required to produce blooms. The young stock could be encouraged to make a second growth, which would save time in getting the plants into a fair size quickly. When the flower buds are set, if fine blooms are wanted the buds should be thinned and only one left on each shoot.

A difference of opinion exists relative to the soil most

suitable to the Camellia. We have tried them in various composts, and have arrived at the conclusion that nothing is so good as a rich fibry loam and sufficient sand to make it porous. We do not recommend manure to be used with the soil, but if additional nutriment is required we prefer giving it in the form of a liquid manure made from cow dung. Occasional applications of soot water have a very stimulating effect upon the plants, and at no time is it more necessary than when the flower buds are swelling.

The time of potting varies considerably, dependant upon the growth of the plants. We recommend the operation to be carried out after growth is completed, and when the flower buds commence swelling. The roots are then active and less liable to injury than when the plants are making growth.

In the case of plants growing in borders, to lift them when the growth is advancing checks them and impedes the progress of the young shoots. On the other hand, if transplanted when the buds are swelling, the roots soon take to the new soil, and the following season the plants grow luxuriantly. We are confident of the success that will attend the lifting of Camellias without the sacrifice of a crop of flowers, either if the plants are growing too strongly or are in a bad state at the roots, provided the work is carefully done and at the proper time.

The following is a list of thirty-six varieties worthy of cultivation. Adrien le Brun, Alba plena, Bonomiana, Candidissima, Countess of Derby, Countess of Ellesmere, Countess of Orkney, Cup of Beauty, Donckelaari, Duchesse de Berri, Emperor of Russia, Fimbriata alba, Henri Favre, Imbricata, Jeffersoni, Jenny Lind, Jubilee, La Reine, Lady Hume's Blush, L'Avenir, Lavinia Maggi, Mathotiana, Mathotiana alba, Mrs. Cope, Mrs. Abbey Wilder, Princess Frederick William of Prussia, Princess Baciocchi, Queen of Beauties, Reine des Fleurs, Reticulata, Reticulata flore-pleno, Saccoiana nova, Sasanqua Rosea, Triomphe de Wondelghem, and Valtevaredo.—WM. BARDNEY, *Norris Green.*

CURRENT TOPICS.

HEATING.

"AN OLD STOKER" recommends the old saddle boiler, a good useful boiler I grant; but, having to add to some houses, I changed an old saddle for a Jones's double-L boiler, and I obtain double the heat with no more—rather less, consumption of fuel than I did previously. Heating has been a hobby and a study of mine for more than twenty years. No one knows the general waste of heat in ordinary ways. I have invented a system for warming churches to economise the heat generally wasted in chimneys, and many of your readers may be surprised when I say that 9-inch unglazed fireclay pipes set in a hollow flue will give off heat 70 to 100 feet from the fire. My system for churches is one of slow combustion—a large underground air chamber with a simple furnace made entirely of fire lumps 3 inches thick, like an ordinary flue, the first 6 feet being of 9-inch cast iron pipe, afterwards of unglazed sanitary 9-inch pipes, set not in sockets but on fireclay lumps, with a half round cut to receive the joints, and covered with another. Over the pipes I place a continuous open grating. This system will give out heat by slow combustion, regulated by the ashpit door, for twenty-four hours after the fire is lighted, and yet if necessary the heat can be raised to intensity in half an hour. I merely mention this because very few persons have an idea of the waste of heat in chimneys.

Then, again, in many, or I may say most stoves, greenhouses, vineries, &c., I see hot-water pipes placed in the wrong position—laid down close to the soil or hid in trenches. All hot-water pipes in plant houses should be raised at least 2 feet from the ground. In my houses all my plants in winter are on trellised wood stages about 3 feet from the ground, level with the light, and the hot-water pipes from the double-L boiler are arranged underneath the stages. I have the flue of the boiler in the potting shed, and force Seakale, Rhubarb, and other things on the top of the flue.

THE INFLUENCE OF LIGHT ON PLANTS.

I can only allude briefly to this subject now. It is commonly said no one can grow Grapes and plants in the same house. It is often, again, said that Ferns require shade and moisture. I should like any gardener after this severe winter to look at some Ferns growing under the same light as Coleus, Dracænas, and other fine-foliaged plants. In the next house with less heat I have on shelves near the glass Tricolor and Bronze Geraniums with as fine colouring as they have in July in the open, and there is not a single plant of Zonal Geranium which I bed out, and of which I have great varieties, but are in full flower now, from cuttings taken after the beds were cleared in the autumn—*i.e.*, about the middle of October. In a stove, and a colder house called a vinery, I grow Grapes, which do not interfere in any way with the plants, simply because I never let them occupy more than half of double-spanned houses, which span east and west, but which also have a hip to the south; thus the houses are very light. Why I mention Ferns being better for light and less damp and moisture is that Adiantum farleyense, scutum, all the species of Maidenhair, and Pteris serrulata, make twice as many fronds in a given time as do plants under the stages, where I grow extra plants, and which have as much light as those in most ferneries. Another great advantage is that the growth of unshaded plants is much more stiff, and the fronds when cut last in water much longer than those do that are grown in the shade. The son of a neighbouring nobleman's gardener, a very intelligent man, was surprised when here two days ago to find Ferns with such vigour of foliage close to the light. The colouring it gives to Adiantum farleyense in its young stage is something wonderful.

Another plant which requires full light is Passiflora "Hogarth" and also Kennedya Maryattæ. These are in full bloom all the winter, though the winter has been too sunless for the Passiflora. The Kennedya produces its flower shoots only on the ripened wood. I unfortunately lost a plant last winter when abroad, but Mr. Sutherland of Castle Howard kindly gave me another plant which he had struck from a cutting I had given him, and a plant only planted in a Vine border last April has now twenty-five spikes of bloom on the lower part of the ripened stem. I have known a single spike go on blooming for three months, and which produced during the season eighty footstalks of developed blossoms; in fact, the one that died last year was in bloom with me for eighteen months in succession, but it had overgrown itself, and covered too much of the roof of the house, and I am training the younger one in a different way.

ROSES—FRUIT—BIRDS.

I find very great differences of opinion about the comparative hardiness of Roses. I have been pruning Roses during the last two days to see which I shall have entirely to pull up and replant, as I have about a hundred Roses ready to put in their places, and have found not only all the Teas but all the varieties having Tea blood, such as Countess of Oxford, Eugénie Verdier, and others of this class have suffered much. So, too, I am sorry to say, has La France. As "A. M. B." in the Journal of April 24th remarks on an observation made by me recently, all the younger growths of Hybrid Perpetuals which came from the base have stood the winter, when the older growth has not. Even some older growths of Gloire de Dijon covering my house have succumbed, while at its base near to it a plant of Alfred Colomb has fine buds on wood of last year's growth from the base. I never keep more than two years' growth if I can avoid it, while the wood of 1877 was completely killed. No standards would have survived the winter here. Now we have not a Plum blossom open on a south wall. We had on five nights in succession last week 12° of frost on the ground, the minimum at 4 feet high marking 24°. Alluding to Roses, I fear the Rose show fixtures will be too early for this season.

Though many think a backward season may be good for fruit, and there is a great promise of buds, still we often do not get sufficient summer to ripen fruit when the season is late. I am almost surprised no remarks have been made on my somewhat verbose description of the way to protect fruit trees. Here I am not plagued with bullfinches, and wish I could see more of them, but sparrows are a nuisance, and also in ripe-fruit time thrushes and blackbirds, but with my system of nets I always get the best of the birds; and I find a cartridge laden with 1½ oz. of 8-shot to 3 drachms of powder a fine recipe for sparrows, especially if a little corn is scattered on the paths. They are useless birds and do farmers much damage by the way they pick the ripening ears of corn, and gardeners by their attacks on Peas when green in the pod.—C. P. PEACH.

PEACHES SETTING IN UNHEATED HOUSES.—I send you small twigs of Prince of Wales Peach and Elruge Nectarine from trees in an unheated house. Although the weather was not of the best description when they were in bloom you will

see that we have very fair prospects of a good crop. As was stated by one of your Irish correspondents in a late number of the Journal the principal branches of the trees were struck hard with the hand once a day, which dispersed the pollen. Some of them were also brushed over with a feathery plume of the Pampas Grass, and this appears a simple means of securing a good set.—A KITCHEN GARDENER.

[The set is an excellent one, every blossom being followed by healthy fruit.—EDS.]

ROSES—PRUNING AND JOTTINGS.

IF I lived in Yorkshire I have no doubt that I should follow the example of Yorkshire rosarians and prune my Roses at the same time as they do. But my remarks were not intended to apply to Yorkshire, nor to anyone who does not occupy a somewhat similar position to "WYLD SAVAGE" and myself—viz., the extreme south of England. Here the Roses commence growth at least a month earlier than they do in the north, and for this reason should be pruned a month earlier. As to Tea Roses, they are here cut out a little in April. I do not say "pruned," for the operation is one entirely distinct from the pruning of a Hybrid Perpetual Rose. I find that it is a mistake to cut back Teas as we cut back a Hybrid Perpetual.

The rampant growers, such as Climbing Devoniensis and Maréchal Niel, are better left alone in spring; and the weaker varieties require only a very slight shortening of any straggling branches and the removal of dead and half-dead wood. Those who have grown many Roses in pots under glass will also be aware that the pithy wood of a Tea does not bleed like the solid wood of a Hybrid Perpetual even if considerably shortened.

Like "WYLD SAVAGE'S" brother, I can do very little with Tea Roses here out of doors; not owing to the frosts as in his case, but to the violence of the winds, especially the S.W. gales, which often strip them of every particle of foliage. I grow a great many under glass, and find them a constant source of pleasure. In spite of the dark cold weather there has not been a single day of the past dreary winter when we have not had an abundant supply. I may mention here how pleased I am with Cheshunt Hybrid under glass. It has proved itself to be a remarkably hardy Rose, and it is interesting to find that it does extremely well in a warm house under similar treatment to Maréchal Niel. In one of my houses I have these two Roses side by side covering the back wall about 28 feet. The shoots of Cheshunt Hybrid have been bent down and left almost their full length. They broke at every joint, and during the last six weeks have been a gorgeous sight; the large crimson blooms of Cheshunt Hybrid (I wish Mr. Paul had found a prettier name for it), contrasting admirably with the gold of Maréchal Niel.

I was surprised to see a short time since that "D., *Deal*," (I think it was) could not succeed in blooming Climbing Devoniensis. I have several very large plants out of doors against walls and houses which sometimes send up a shoot 30 feet in length during the summer. They are never pruned, and the next season they burst into flower at every joint. From one of my plants I cut fifty show Roses at one time, and with some of them took the first prize for twelve of one variety against such sorts as La France, Marquise de Castellane, Baronne de Rothschild, and other noted varieties, besides showing in all my other boxes and having plenty left. I never heard that there were two varieties of Climbing Devoniensis before, one more rampant than the other.

I may add my testimony to that of "A. C." (page 289), that Maréchal Niel when well grown frequently shows a semi-Noisette character. My large plants under glass have this season produced multitudes of clusters of from three to four flowers. I never find that the bunches exceed the latter number, nor are they ever produced except from strong well-ripened wood of the last season's growth. Maréchal Niel never ought to bloom itself to death as "A. C." says that his did. The way to keep it alive and vigorous is to grow it like a Raspberry bush. Dose it with liquid manure after blooming until you get it to throw up fresh shoots from the collar. In autumn cut out all the old wood and lay-in the young, and you will be rewarded next season with plenty of flowers, not singly only but in clusters.—R. W. BEACHEY.

SUMMER-PRUNING CURRANTS.—"There is nothing new under the sun," is an aphorism that has apparently been lost sight of by Mr. Luckhurst in his notes on this subject. The plan has been known, and successfully carried out, in the north of England for many years; in fact gardeners of the last generation knew the value of it. Some of the best dishes of Red and White Currants that have been staged at our local exhibitions were produced on trees managed in this manner. The practice of pruning Gooseberries in the summer is fast growing in favour here; it has not been general hitherto.—PETER FERGUSON.

SOIL DIFFICULTIES.

I QUITE agree with your correspondent Mr. Taylor (page 208) in his very sensible and clear remarks upon the drainage of land. I think all are agreed that upon the nature of the ground should depend the distance of the drains from each other, for if the texture of the soil be comparatively light and porous the drains may be opened at a considerable distance apart, but if of stiff and heavy clay the drains must only be 15 to 18 feet apart, and 4 to 4½ feet deep, so that all stagnant water beneath the surface may be carried off. Now is the time to apply coal ashes and cinders with the best effect as a bottom layer, when trenching, mixing some also with the surface soil, the quantity varying with the nature of the soil. They should be dug in deeply, as they render the soil loose and porous, when the superabundant surface water will be able to make its escape to the drains. This is well worth our attention, for if a hard stratum of clay immediately underlies the soil it will retain the surface water, and our best efforts will be paralysed.

I am glad to see the subject "lime," and the manner of applying it treated of in the same article, and now that it is started I hope it will be continued until all that is useful or valuable connected with it is brought to light. It is a subject in which I take a particular interest. From experience I know that lime applied to land, especially dry land, makes it friable, which is a great advantage; again, we know that lime must be present in every fertile soil producing several useful effects. For instance, some soils contain acids and noxious compounds; lime neutralises them, and renders them harmless. Again, lime acts on the dormant constituents of the soil, and converts them into valuable food for plants.

My mode of applying lime is as follows:—In autumn, when the ground to which I intend to apply it has been cleared of the crop, I have as much lime as I consider necessary piled in the centre of the square, and when slaked spread evenly over the ground. I mark the ground into 2 feet 6 inch drills and dig it in, taking care to raise the drills as high and roughly as possible, and keeping the lime in the centre. In this state the plot is allowed to remain till the ensuing spring.

Several advantages are gained by this treatment. 1st, The lime is applied in its quick or caustic state, when it acts more speedily than it otherwise would in correcting the evil effects of any poisonous compound which the soil may contain. 2nd, Lime in its caustic state, being widely diffused through the soil, is more active in converting its dormant constituents into plant food, while it must prove destructive to grubs and larvæ deposited in surface soil. 3rd, It is kept separate from manure, as I believe from practical experience that a great deal of valuable manure is irretrievably lost by coming into contact with quicklime. 4th, I endeavour as much as possible to keep lime near the surface, as we know by experience its downward tendency. 5th, We have as great an area of surface as possible exposed to the influence of a fertilising atmosphere. —ANDREW CAMPBELL, *Muckross Gardens*.

HAWFINCHES AND BULLFINCHES.

IT may interest "WILTSHIRE RECTOR," and other readers of our Journal respecting the scarcity of the hawfinch in this country, to learn that on one occasion, in the latter end of January last, I had the unusual good fortune in an ornithological sense, to witness in the deer park here, flying in a scattered group from clump to clump of Elms, between forty and fifty hawfinches. The greatest number that I remember ever to have seen or heard of before in a flight has been from eight to twelve; and here in the breeding season only one or two pairs have been noticed, but those sufficiently noticeable as regards the Green Peas as mentioned by Mr. W. Taylor.

I am not aware that it is usual for hawfinches to congregate in large numbers during the non-breeding season, but it would be interesting to learn through your columns whether such be the case or not. I hazard the opinion that, as with

the starlings, wood pigeons, &c., they do so, and only pair off in the breeding season. It would be additionally interesting to know what this bird feeds upon generally after the crop of haws are consumed in the winter.

Regarding the bullfinches my experience is similar to that of Mr. Taylor, excepting, fortunately, we are not "blessed" with such numbers, though occasionally sufficient to almost denude our standard Pears, Damsons, and orchard Apple trees of their buds, whilst curiously I have never known them to attack the Apple trees in the gardens here. I cannot, however, as yet complain of their depredations this season, as not an Apple or Pear bud has been attacked, excepting a few weeks ago two or three pairs of the "*dear* bullies" ventured to pay their *dévoirs* to the Damson trees, and divested them of the major portion of the buds before they were detected, when they consequently paid the penalty of their burglarious proceedings at the hands of their detective, since when not a single member of the fraternity has essayed to put in an appearance.

I must not, however, crow too loudly, as there is yet time for their visitation before the fruit buds are too far developed.—WILLIAM GARDINER, *The Gardens, Eatington Park, Stratford-on-Avon.*

FOOTPRINTS OF THE FROST—ROSE REPORTS.

IT may interest rosarians to know how Roses have fared in Berkshire during the past winter. My stock consists of about one thousand plants in 180 varieties, grown as tall standards, dwarf standards, and seedling Briar—very few on the Manetti. Some are in an open field in a most exposed situation, some are rather more sheltered, and some enclosed within four walls. Of Hybrid Perpetuals I have lost Hippolyte Flandrin, Star of Waltham, Rev. J. B. M. Camm, and Pitard. Of Teas, &c., Belle Lyonnaise, Madame Margottin, Devoniensis, Madame Falcot, Homère, and Perle des Jardins. Solfaterre, Souvenir d'Elise, and Triomphe de Rennes have suffered the most. Maréchal Niel is unhurt, as also Belle Lyonnaise against a wall, but not otherwise protected. The Teas were not mulched, and I attribute my small loss to my having lifted most of them in the autumn, and to our soil being naturally well drained. I observe that in some of the Hybrid Perpetuals as well as Teas the younger wood has stood better than the older.

Budded seedling Briars are very backward, some not started yet, whilst the standards are well on.

With regard to what "C. R P." says about labels, let him but try Smith's of Stratford-on-Avon, at 1*d.* each, and he will never use any other.—E. P. W., *Stamford-in-the-Vale, Farringdon.*

HAVING read with much interest the accounts from correspondents writing from both the north and south of England of the state of their Roses, I think a note of how we have fared in Wales may not be uninteresting.

Here, in Glamorganshire, Tea Roses are much injured; of the more tender varieties many are killed. Amongst those that have suffered most are Niphetos, Solfaterre, Souvenir d'Elise, and Devoniensis; while least affected of any is Maréchal Niel on walls and as standards. Such as have some infusion of hardier blood—as Belle Lyonnaise, Cheshunt Hybrid, and Duchess of Edinburgh—have not suffered. The severe weather seems just to have suited us here for such Teas as have been able to outlive its severity, for in very mild winters we have them prematurely started into growth, perhaps showing bloom at every eye, only to be destroyed by the white frosts which we have so severely each April, and thus many feet of the best wood has to be annually pruned away, while this year they are only fairly started, and those on walls at least may escape. Hybrid Perpetuals are looking well, and although they have been pruned three weeks are only now breaking.

As yet (I am writing on April 19th) only an approximate idea can be formed of the extent of damage done in the grounds generally, for until vegetation is fairly on the move we may count lives where there are deaths. I fear many things are gone that we fondly hoped were almost hardy in favoured localities. Myrtles against walls and in the open are losing their foliage, but are not killed; some of them are old plants, and I have an idea that perhaps things are sometimes given up as tender, they being killed in a young state, which, if protected for a few years or should mild winters succeed their planting, might ultimately live with only a severe cutting in exceptional seasons.

To illustrate what I mean I may state that as Myrtles do well here a large batch, some hundreds, were raised two years ago intended for planting in grounds; they, however, are all gone, whilst the old plants are only severely nipped. I notice two further instances this season, one in a two-years-old lot of seedling Yuccas, all of which have been killed, and the old plants of Y. gloriosa uninjured; but in this case, as the seed was imported, I cannot say certainly that it was the ordinary form of Y. gloriosa, although it had every appearance of being so. And again, in Camellias against a wall the small plants are all much injured and some killed outright—not because of being tender from previous house cultivation (which may account for some failures with young plants we try to acclimatise), for they were planted out immediately they were received, some three years ago; while large old plants put out at the same time are uninjured, except that the bloom buds are destroyed. Possibly others have noticed the comparative hardiness of older plants, and may give their ideas thereon.

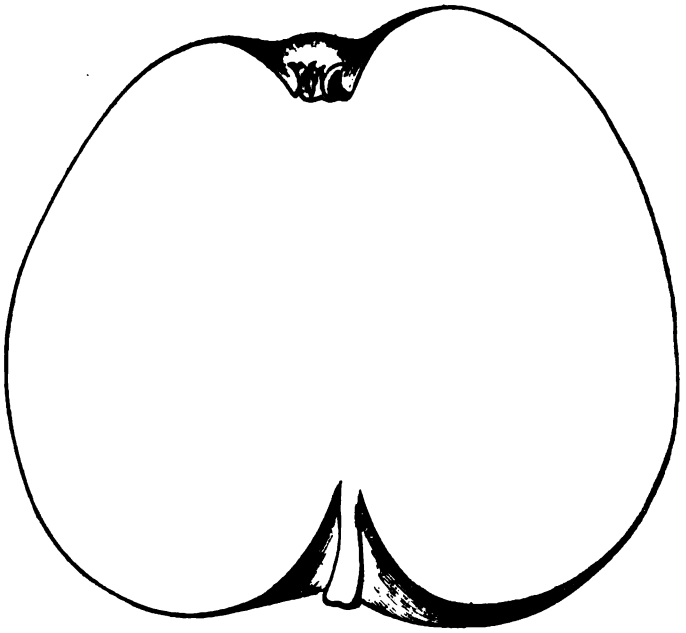


Fig. 46.—Lane's Prince Albert.—(See page 323.)

Two climbers, Passiflora cærulea and Clianthus puniceus, that covered a large extent of wall and flowered well with us are cut almost to the ground, and I fear have little vitality left in them. The latter is one of the best climbers I know of, being for quite three months of the year literally covered with bloom. Of several large plants of Cytisus racemosus all are killed. Of plants that seem uninjured I may mention a large example of Pittosporum Tobira, and Magnolias on walls; in the ground plants of Raphiolepis ovata, Hydrangeas of sorts, Aralia Sieboldii, and its variety variegata. Three plants suitable for the rock garden have surprised me by surviving on exposed rock over water; these are Pteris serrulata, Selaginella denticulata, and Sedum Sieboldii variegata. The last, of course, dies down in the winter, but is now pushing nicely in spite of white frosts every morning for the last week. It is a very pretty plant for the rock garden, and if sufficiently hardy will be very useful; but snails are so fond of it that if not sharply looked after will leave none of it to stand the winter. —R. C., *Castle Gardens, St. Fagans.*

PRINCE ALBERT APPLE.

A CORRESPONDENT sends the following query:—"I shall be glad if you will inform me respecting Prince Albert Apple, whether there is more than one distinct variety bearing that name. I have a tree named Prince Albert which bears fruit very much resembling Minchall Crab; I have also Lane's

Prince Albert, but have not yet fruited it." As the subject may be of interest to others of our readers besides "G. C. S." we give all the information on the subject of which we are possessed.

LANE'S PRINCE ALBERT.

The best-known Apple, and we believe the first to bear the name of Prince Albert, was that raised by Mr. John Lane of Berkhampstead from Russet Nonpariel fertilised by Dumelow's Seedling. It received its name on the occasion of Her Majesty and Prince Albert visiting Berkhampstead.

Lane's Prince Albert (fig. 46, page 322) is a large handsome Apple, and the tree is an immense bearer. The shape of the fruit is short, conical, or ovate, even and regular in its outline, with broad ribs round the crown. Skin smooth, bright grass green at first but changing to clear pale yellow as it ripens, and sometimes with faint broken streaks of red on the side next the sun. Eye rather small, closed, with erect pointed segments, which are reflexed at the tips and set in a deep rather angular basin. Tube funnel-shaped; stamens basal. Stalk over half an inch long, inserted in a deep round cavity. Flesh very tender, juicy, briskly acid, and agreeably flavoured. Cells wide open.

A very excellent kitchen Apple, in use from October till March.

SMART'S PRINCE ALBERT.

This is a variety which is considerably grown in Kent. It

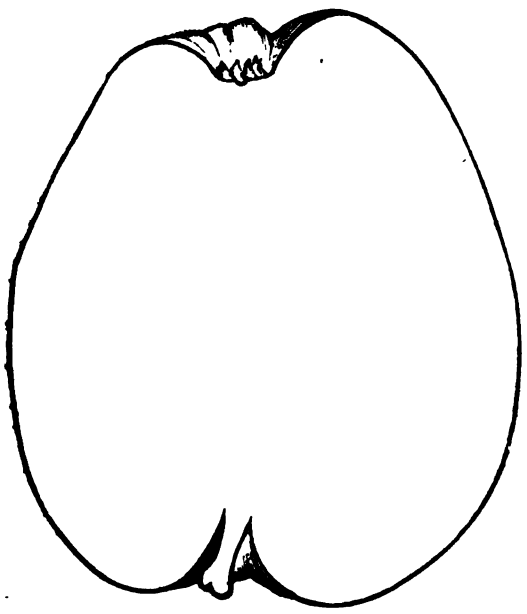


Fig. 47.—Smart's Prince Albert.

was recently brought to our notice by Messrs. Bunyard of Maidstone.

The fruit (fig. 47) is conical, somewhat snouted towards the apex, and with obtuse angles on the sides which extend to the eye, round which they form prominent ridges. Some specimens have some resemblance to Cornish Gilliflower in the shape. Skin orange yellow, with a greenish tinge in some parts, and covered with broken streaks of crimson. Eye somewhat open, with erect segments deeply inserted in an angular cavity; tube deep funnel-shaped; stamens marginal. Stalk short, inserted all its length in a deep cavity. Flesh yellow, firm, juicy, sweet, and of excellent flavour. Cells wide open.

A very excellent dessert Apple, which keeps well till March and April.

IXIAS.

OWING to the Journal not having of late reached me until Saturday, I have been compelled to lose one issue. All I previously stated I now endorse by the fact that I merely wrote that which I had witnessed, and, strange to say, I even saw them in Mr. Krelage's establishment, and was struck with the difference in the length of spike and size of flower existing between them and those that are so often exhibited at the London shows. Mr. J. H. Krelage draws attention to the former part of the third paragraph of my notes at page 173. I beg also to draw notice to the latter part, as taking disconnected parts is unfair "in dealing with a general statement."—H. C. J., *Guernsey*.

ROSES AT HEREFORD.

I THINK it will be admitted that our climate here is as severe as it is in North Worcestershire. Our experience of losses through the severity of the winter is very different from the statement of your correspondent "A FREQUENT SUBSCRIBER," on page 302. We have not lost any Tea Roses on the Manetti; on the contrary, although cut back by the frost they are breaking very freely and promising well. On a bed of many hundreds of Maréchal Niel, and another bed of Niphetos, I do not see one killed. This also applies to all the other Teas on the Manetti stock. I think, therefore, the nurseryman referred to in the letter of "A FREQUENT SUBSCRIBER" must be especially unfortunate.

Standard Roses have suffered fearfully. We have taken out of one quarter 1600 dead plants. Comtesse d'Oxford, Duke of Edinburgh, Eliza Boelle, John Stuart Mill, Horace Vernet, Lord Macaulay, Madame Bellenden Kerr, Mdlle. Eugénie Verdier, Alfred Colomb, and Marie Baumann are considerably injured, especially the two varieties last named. Roses in the bud state on Manetti and Briar are not much injured.—GEORGE DAVISON, *White Cross Nurseries, Hereford*.

HERBACEOUS PLANTS—MAKING A BEGINNING.

THERE is a fraternal feeling prevalent among horticulturists which causes us to feel friendly disposed towards anyone who is struggling with difficulties, and I venture to think that many of your readers will sympathise with me and some few perhaps be inclined to help me, if I venture to state my case.

The late severe weather has given the *coup de grâce* to my Manetti Roses; I have literally had to throw away hundreds. The plants had, it is true, suffered from the poverty of the soil and their constant struggle for existence, but they would have lasted a year or so if this long—and, alas! still lasting—winter had not destroyed them; consequently I have an immense space of ground which is denuded of plants. Where my main rosery was I have planted Potatoes, but in the front of my house and in the churchyard I have had to buy an immense number of plants, and yet there is room.

I have begun to grow herbaceous plants, and I want to make a good collection as soon as possible. Now I doubt not many of your readers have large collections, most of the plants of which can be, not only without detriment but positive gain, thinned or divided. Will any who are in this fortunate condition send me any surplus stock, and I will in turn give them any plants which I am able to divide next autumn? Failing this, or in addition, will one of my fellow labourers on the staff of the Journal give me a list of the very choicest hardy herbaceous plants? I have obtained Mr. Ware's catalogue, also Messrs. Backhouse's and Mr. Robert Parker's, but the number of varieties is so great and the eulogistic remarks so bewildering that it is hard work to select. I have read books on hardy flowers and alpine plants, but I am if possible still further bewildered. I hope, then, that any lover and grower of these hardy plants will extend the right hand of fellowship to me, and will give me a list of the very best varieties now in commerce; and to anyone who will trust me so far as to send me plants I will undertake to give them in return next autumn plants to the same value, either of Irises, Delphiniums, or herbaceous Phloxes.

And now a few words about Liliums. I do not know that I have ever met with so much contradictory advice as to the culture of any plants as these, and this, too, from people who from their position ought to know. If I may mention names, Mr. Barr says Lilies do not require, do not even like, manure of any kind, even in a liquid form; while Mr. Fish recommends (in his "Bulbs and Bulb Culture") rotted manure as a substitute for peat, then to mulch with cocoa fibre refuse or 2 or 3 inches of manure from an old hotbed or Mushroom house, and in dry weather recommends two or three good soakings of guano water or common house sewage of moderate strength. Then as to site. Mr. Fish recommends partial shade, and speaks of one of the best places for them to be among

American plants, while others say the "Lily loves sun, not shade as some growers say." Now here are two of the most essential points in Lily culture—soil and situation—concerning which authorities not only differ but contradict one another. It seems as if, follow which course we may, we have a chance of success, but I should like to know which is the best. Perhaps this letter may incite some of my learned brethren to write an article on Lily culture; if it does my end will be gained, and no one will feel more grateful than—WYLD SAVAGE.

THE BIRD PEST.

PERMIT me to draw the special attention of our readers to the following leader in the *Standard* newspaper of the 16th of April. The writer is evidently a reader of the *Journal of Horticulture*, for he not only quotes Mr. Radclyffe's words, words which were recently printed in our columns, but mentions that writer's name. He also quotes my words and makes use of my arguments. That such an article should appear in a daily newspaper is a great gain to the cause of common sense. The *Journal of Horticulture* is a weekly paper, and also chiefly goes into the hands of one class—that connected by profession or strong taste with gardens; but the *Standard* is read by all classes. If Dean Swift gave utterance to a wise thing when he wrote "He that makes two blades of grass grow where only one grew before is a true benefactor to his country," he also writes wisely, "Who, in a time of great agricultural and commercial depression, when grim poverty is at so many doors, shows the folly of allowing birds to eat the food of man, who points out where is wicked waste where no waste ought to be." Let us make every bit of ground productive for food—waste in a garden is as bad as waste in a house. I would plant every railway embankment with Apple trees. I would restore the lost balance as to birds in the country districts by a diminution of their numbers, and send the poor man's child to market with Apples and Pears unpecked, and so more valuable. Who can calculate the many thousands of pounds' worth of fruit yearly destroyed in England each year by the bird thieves? I am glad to see that even a bird lover like Mr. Harrison Weir shoots the bullfinch at once; he might profitably thin down the blackbirds, thrushes, and those little rascals the tomtits.—WILTSHIRE RECTOR.

"The inclement spring through which we have just struggled has not been without its recompense, or, as lawyers would say, its 'set-off.' Skilled horticulturists are looking complacently forward to the prospect of a crop such as has not been seen for many years. Sunshiny days in early spring are apt to prove as treacherous as they are pleasant and inviting. To frost and snow succeed rain, and upon the rain there follow again a few days of light, clear, bright, fickle sunshine. The deceitful welcome tempts the young buds. Every bough and spray begins to give promise of leafage and fruit; and then, without notice, winter once again resumes its grim sway, and the buds drop from the branch as if they had been plucked, and the young leaves wither as if they had been scorched and seared. This year no such phantasmagoria of fine weather has tempted Nature out of her course. All over the country the fruit crop is late, and a late fruit crop is almost invariably a good one. A hard forewinter, a late spring, and a rich kindly summer bring to its perfection the rich wealth of autumn. In Devonshire—the queen of our fruit-growing counties—the winter is, as a rule, sharp and keen, and the spring is tardy, but the summer is almost tropical; and in a good year the Devonshire cider harvest, when the crimson and golden weight under which the old trees in the orchard groan and creak is shaken and beaten down into the long cool grass beneath, is a sight well worthy the painter's brush.

"The assiduous grower of Apples and Pears, of Peaches, Nectarines, Apricots, and wall fruit generally, of Strawberries, Gooseberries, Currants, and Raspberries, finds the *amari aliquid* in his lot. Like the old woman who, when told by her rector that Providence had been very good to her, replied that possibly it might be so, but 'it was all taken out of her in her corns;' so in spite of a spring which is what it ought to be, and the prospect of a summer which bids fair to be even more than it might be, the fruit-grower, in default of more substantial ground of complaint, is dissatisfied with the birds on the one hand and with the insects on the other. By the ordinary operation of Nature's laws the birds ought to eat the insects, and the insects to be eaten by the birds. Such at any rate is the view of Sir John Lubbuck, of Mr. Auberon Herbert, and other estimable pupils of Gilbert White, and believers in that amiable philosophy which assures us that in this best of all possible worlds everything works in the best of all possible ways. The fruit-growers, however, cannot be readily brought to accept this cheerful view. Mr. Radclyffe, although 'no advocate for bird annihilation,' yet roundly declares that the birds are the ruin of all his fruit. Before the winter set in he counted in a single acre of cropland no less than thirty-seven blackbirds and thrushes. These marauders pull down the Pears and pick holes in them; they exterminate the Gooseberry crop, and they pay impartial attention to Currants, Raspberries, and Cherries.

"The truth is that Nature would institute, preserve, and keep a proper balance herself if we only gave her the chance. But, instead of leaving her free to take her own course, we interfere with her operations. We remorselessly shoot or trap stoat and weasel, goshawk, sparrowhawk, kite, harrier, and owl, and then we wonder that the small birds multiply unduly at the very moment when we ourselves are actually overstocking our orchards."

HOT-WATER APPARATUS.

OWING to the past severe winter much extra firing has been requisite to meet the demands of forcing houses, pits, &c., but the numerous articles that have appeared in the Journal testify that many have been deficient in boiler power, and it is interesting to read the different remarks that have been made on this subject. In each case the boiler is condemned, but does it occur to no one that the setting of the boilers is in fault? Of the numerous boilers now in the market each claims to be the best, and some particular boilers are said to do a certain amount of work with very little fuel. Others, again, are guaranteed to heat so many feet of piping and to do wonders. But it is against this sort of teaching that I wish to protest, as it is very misleading to the amateur, the employer, and often to the gardener. Experience has taught me that if we want heat we must have fire, and that the best and cheapest fuel for large apparatus is 4 cwt. of coke to 1 cwt. of coal. The use of coal causes a much stronger heat than when coke is used alone, and with the proper regulation of the dampers the fuel will not burn away so fast. If a boiler does not work satisfactorily the first step to take is to see if there be any bad connections, arrangements, or levels in the pipes, and if there are lose no time in having them rectified, always bearing in mind that hot water will ascend but will not descend without a large and wasteful amount of fuel.

As far as the shape of the boiler is concerned I give preference to Messrs. Weeks & Co.'s patent tubular as recommended by Messrs. Henderson at page 274 of the Journal. Yet in recommending this boiler I do not condemn all others, but I certainly must condemn the unskilled manner in which we often see boilers set and arranged. In cases where the run of pipes exceeds 2000 feet I strongly recommend two medium-sized boilers in preference to one extra large boiler, as, for instance, should the weather prove mild one boiler can be dispensed with, and in severe weather the two can be used with much greater advantage, and at the same time the two boilers will not consume more fuel than the one monster.—J. LLOYD JONES, *The Mount*.

MIGNONETTE IN POTS.

MIGNONETTE, although one of the commonest plants in gardens during summer, is one of the most valuable in greenhouses during winter and spring. To see plants in 10-inch pots 30 inches high and 2 feet in diameter, with nearly one hundred spikes of bloom on each plant, is very pleasing to an employer on Christmas-day or New Year's eve. It is pleasant also to the gardener to be asked with an exclamation of surprise, "How do you grow the plants so fine?" The plan I adopt is as follows:—

I sow the seed during the first week in April. As soon as the plants are large enough they are potted in single pots, and are carefully attended to in watering, potting, pinching, and staking. I do not enter into details of culture, as these have been admirably supplied by Mr. Bardney on page 265. Half a dozen plants of the above size have furnished me with spikes of bloom since last October; three plants for the early part of the winter, and three more for succession, which are sufficient for a small house. One plant that I am saving for seed has spikes from 8 to 10 inches long. The variety that I have grown this year is Miles's Spiral. I shall grow it again, not

expecting to compete with the first-class gardeners, as I am only—A NOVICE.

NOTES AND GLEANINGS.

A POPULAR FLOWER SHOW instituted by the Council of the Royal Horticultural Society was held last year on Whit-Monday at South Kensington. A similar gathering is announced to be held on June 2nd, when the Society's medals will be awarded to artisans and the working classes generally for products grown in the metropolitan district. Contributions to the prize schedule from friends to this movement, in order that the wholesome influence of horticulture may extend to the humbler sections of the community, may be forwarded to Mr. Jennings, the Assistant Secretary.

—— A ROSE SOCIETY has been established at Farningham under influential patronage, and the first Show is to be held on June 25th—the same day as the Norwich fixture. The classes are numerous and the prizes good. Mr. F. Burnside is the Hon. Secretary.

—— UNDER the influence of a few warm days—suddenly followed, however, by colder weather—DECIDUOUS TREES AND SHRUBS in the vicinity of London have burst into growth with considerable rapidity. For the purpose of comparison being afforded with other districts it may be stated that on the gravelly soils south of the Thames many early Chestnut trees have made from 4 to 6 inches of growth, and the flower trusses are clearly visible. Sycamores have leaves 3 to 4 inches in diameter, Thorns are quite green, Beeches and Elms are just unfolding their foliage, and Lilacs are approaching the stage when the colour of the flowers can be perceived in the fast-swelling buds.

—— THE beds and borders in the CRYSTAL PALACE are now very gay. In consequence of the dull cold season Hyacinths have continued fresh for an unusual length of time, and are yet seen in great numbers. Cinerarias are admirably grown; these, with masses of Azaleas and various other flowers, render the structure extremely cheerful. A favourite plant, which is largely grown for affording relief to the floral masses, is the Crested Fern, Nephrodium molle corymbiferum, and it answers the purpose admirably.

—— WE have recently inspected RIPPINGILLE'S PROPAGATING FRAME at work, and do not hesitate pronouncing it a valuable aid to amateurs and gardeners. For raising tender plants from seed and striking cuttings top and bottom heat with a close moist atmosphere are indispensable. Even a well-heated house in which plants are grown is unsuitable for propagation, because the amount of air requisite for the plants is fatal to the cuttings. In the great majority of gardens propagating houses are not provided, and a vast number of amateurs are unable to indulge in the luxury of a dung frame. The propagating case in question, heated by paraffin, will form a substitute for those structures of practical utility. Placed in a suitable position in the interior of a glass structure, a large-sized case would enable hundreds of plants being raised in a few months. The lamp for heating is placed outside the frame, and no deleterious fumes can enter its interior. The flame acts on a shallow vessel—a zinc tray containing water about 3 inches in depth. This is covered with slates, which support the necessary quantity of fibre or other material for plunging the pots in. A top and bottom heat of from 60° to 80° can be maintained at will, and when it is stated that the atmosphere is sweet, moist, and genial, evidence is at once afforded of the real usefulness of this simple contrivance. The cases are not got up in an attractive style to "catch the eye," but the chief object of the inventor has been to render them useful. They are plain, portable, and serviceable, and with proper management will answer well the purpose for which they are intended.

—— AMONGST the multitude of beautiful plants now to be seen in Covent Garden Market we recently noticed some very fine HYDRANGEAS in 5 and 6-inch pots. These plants were particularly remarkable for the great size of the individual flowers and heads, the latter being from 10 to 12 inches in diameter; the foliage was also fresh and healthy. Such plants as these are invaluable for decorative purposes.

—— "A. M. B." thanks "H. C. Y." for information about the species of SPIDER with white markings observed on a healthy Rose tree, and for remarks on the habits of spiders generally, but would be also glad to know whether naturalists are agreed that spiders are not injurious to plants. "A. M. B." is under the impression that some kinds of spiders feed on the pulp of the green foliage of Roses, the leaves presenting then a bruised, blackened, and unsightly appearance, and until assured on this point prefers to protect the Roses rather than the spiders.

—— MR. BARDNEY informs us that in one of the plant houses at WOOLTON HALL near Liverpool a plant of Bonapartea juncea has a flower spike 12 feet in length; the flowers are greenish yellow in colour, and the spike has now a number of seed pods upon it. He also noticed a plant of Odontoglossum vexillarium, one break producing four spikes bearing twenty-four flowers; Odontoglossum Pescatorei, one break producing two spikes and forty flowers; and Calanthe veratrifolia with ten spikes. The same house contained a good plant of Anthurium Schertzerianum in flower. The condition of the garden, observes our correspondent, reflects great credit upon Mr. Faulkner the gardener.

—— THE plant houses in the ROYAL BOTANIC GARDENS, EDINBURGH, have recently been re-arranged by Mr. Sadler. In the large Palm house two large specimens which died last year have been removed, and more space has been consequently secured for the development of other specimens which before were crowded. Some of the Palms are at present flowering. The frost has somewhat browned some of the Conifers in the grounds; and the rockery, which in former years used to be very interesting at this season, is still almost destitute of flowers. It is doubtful if some of the very early plants will flower at all this season.

—— FEW New Holland plants excel EUTAXIA MYRTIFOLIA in delicate prettiness. The leaves are small, rigid, acute, and dark green; the flowers are bright yellow, the lower portions of the alæ and standard are shaded with orange red. It may be grown into a pretty shrub for the greenhouse in a mixture of peat and loam, the pots being well drained. This plant was introduced about 1803, and is now flowering freely at Kew.

—— A CORRESPONDENT, "X. Y. Z.," adopts the following plan of DESTROYING FRUIT-EATING BIRDS:—"Take an ordinary spring rat trap (I use three or four) and tie a Strawberry on the plate. The bird will peck at the fruit, setting free the trap, which catches the bird across the head, killing it immediately. For bait use any fruit that is in season. I catch many birds with a slice of Pear tied on the trap. By adopting this plan even ardent bird-protectors will admit that you only catch the birds that eat the fruit."

—— A REMARKABLY fine Gloxinia is LÉON DE FREMENVILLE; the throat is a very dark and rich purple, fading to blue on the margin of the corolla; the flowers of fine size and shape; foliage large and good.

—— IN reply to "DELTA" on page 311 relative to RASPBERRY CANES being killed when secured to a wire trellis Mr. Whitherspoon writes as follows:—"A few years ago I saw a row of Raspberry canes trained to a wire trellis all dead; they had a burnt appearance. My impression was that the wire had been struck by lightning, and I then considered that danger was to be apprehended from so using wire, but I have not seen or heard of any proof since. Your correspondent's case may be a second instance."

—— ONE of the most distinct and valuable of ornamental Conifers is CRYPTOMERIA ELEGANS. Although in appearance it is tender, yet it has resisted the effects of the late severe weather in a remarkable manner. It is browned, as it always is during the winter, but we believe it has sustained little if any injury. We recently saw a very fine example of it in Miss Christy's garden at Coombe Bank, Kingston-on-Thames, not a spray of which has been injured, while some of the Wellingtonias in the same garden are much shrivelled. Cryptomeria elegans is suitable for gardens large or small, and for flower beds during the winter, where it shows to advantage when associated with such evergreens as Aucubas. It, too, strikes more readily from cuttings than most Conifers, small plants in pots being very ornamental for window sills, balconies, vases, and other decorative purposes.

—— IN the stove at Kew the remarkable COCHLIOSTEMA JACOBIANUM may be seen in flower. This plant was introduced from the neighbourhood of the Amazon River in 1866, and is included with its allies the Tradescantias in the natural order Commelynaceæ. The bracts and sepals are of a delicate pale purple hue, the petals are bright blue and fringed. The flowers are borne on an inflorescence arising from the axils of very long imbricated leaves. In the same house RUDGEA

MACROPHYLLA is bearing a dense head 4 to 5 inches through of pure white flowers. This is a beautiful Rubiaceous plant, which was introduced from Brazil in 1866, and flowered in the Pine Apple Nursery in 1867. The foliage is large and dark green, contrasting well with the terminal white heads. The plant requires a compost of loam, peat, and sand, and a brisk heat to obtain it in perfection. A plant was recently staged by Mr. Wills in his group at South Kensington.

—— "H. F." writes:—"Will any of your readers who may possibly have read or heard accounts of the winter of 1813-14, state whether that winter was, like the one we have just passed through, remarkable for the absence of sun? This may seem a strange question, but the reason I ask is this: An old Scotch gardener once told a relative of mine that during that terrible winter he did not see the sun for upwards of six weeks. He was at that time living at a then noted gardening establishment in Cambridgeshire, and having but recently left his native country he asked in some dismay, Does the sun ever shine in England? The old gardener was, I believe, generally correct in his statements, and if the above was true it would seem that dull as the past winter has been, it has only been a proof that what has been before may be again. Perhaps some of your readers may be able to give some information that will confirm the above facts."

—— THE rare Orchid SCHOMBURGKIA TIBICINIS, a native of Honduras, is now in bloom at Kew. The spike is about 3 feet in length, with eight fine flowers clustered near its summit. The sepals and petals are purple, the labellum being a similar colour, with reddish veins in the throat. It was introduced in 1834. Several Cypripediums are also flowering, C. caudatum being especially noticeable with very long petals.

MARÉCHAL NIEL A NOISETTE—TREATMENT UNDER GLASS.

I AM confirmed in the opinion I had formed of Maréchal Niel being a Noisette by an opportunity I have just had of inspecting several plants grown under glass in the neighbourhood of Reigate by a friend of mine, a rosarian of many years' standing. His treatment is peculiar, and promises success—at least, nothing could be more satisfactory than his present show of bloom buds. A few sunny days and he will have a charming display. The plants are not large, but carefully grown, and I have thought his method worth describing in the pages of the Rose Journal. He allows nothing older than three-years wood, two for choice; every twig of everything else is pruned away in November, the long shoots at the same time being cut in all along as smooth as a walking stick. The branches are then bent down so as to induce bloom buds to break all along, and stout shoots of new wood to start from the older portions. The result is satisfactory, and at the same time peculiar. On the three-year-old shoots, of which he had left one, the blooms are single and comparatively small and weakly. The two-year-old branches have finer bloom buds, but on last year's wood the new shoots are by far the finest, and almost every bloom has its two or three attendants. The blooming will somewhat illustrate that remark of Lord Byron—

"A lady, with her daughter or her nieces,
Is like a guinea with seven shilling pieces."

—A. C.

PRESERVATION OF BIRDS—FRUIT PROSPECTS.

I QUITE agree with your correspondent, the Rev. W. F. Radclyffe, that annihilation of birds in this wooded part of the country is almost impossible. Although a lover of birds, I maintain their preservation is quite necessary to a certain extent, yet still there should be a limit to all fruit and bud-eating birds. The Gooseberries and other fruit trees have escaped being deprived of their buds this season, although the winter has been so severe and long. Last spring the Gooseberry crop was a failure owing to the birds and late frosts. On carefully watching I found much mischief done by sparrows, chaffinches, and tomtits—not by bullfinches, as they are scarce here, in fact I have only seen two during the whole winter; therefore those who think the bullfinch is the only bird which divests the Gooseberries and other fruit trees of their buds in spring are in error. The blackbird and thrush, sparrow and chaffinch, are becoming a serious evil owing to the increase of numbers caused by the absurd Preservation Act. If we were not to cover fruit trees, Peas, and many other crops with nets, which is a work of no little trouble and anxiety, we should certainly lose the crops.

Owing to the very late season I have great faith in abundant fruit crops. Gooseberries, Currants, and other bush fruits look well and promise a good crop. Apples and Pears show well for a great bloom; Plums and Cherries also promise well for a crop; Peaches, Nectarines, and Apricots are in full bloom, and being protected with glass coping will undoubtedly yield an abundant crop.—H. C. OGLE, *The Gardens, Turnworth.*

PILLAR PLANTS.

FOR clothing pillars in conservatories some plants are particularly appropriate. Twining or climbing plants are employed, but they are not nearly so effective as those that have a semi-scandent, or, what is better, a pendulous habit. Mimosa prostrata may be taken as an excellent typical pillar plant, its balls of pink being very effective. Acacia Riceana is also very effective; A. juniperina being little less so. A. oleifera elegans, A. armata, and A. pulchella may be mentioned as suitable. Correas are very effective, particularly C. speciosa major. Few plants surpass the neglected Habrothamnus aurantiacus, H. elegans, H. fascicularis, and the newer H. *Newelli*. Abutilons are peculiarly fitting, their pendulous bells showing to great advantage. Mitraria coccinea with its bright scarlet flowers in early summer is truly grand, and in late summer the straggling habit and the sky blue flowers of Plumbago capensis are so effective. Rhynchospermum jasminoides and its variegated form are beautiful and fragrant. Fuchsias are unrivalled in their season, and Heliotropes always have their admirers; and by no means despicable are Tropæolums of the Lobbianum section. Tea Roses are particularly acceptable, and have a looseness very different to the formality of twining plants. The Thibaudias with their tubular flowers cannot be excelled, whilst for a mass of golden fragrance Cytisus racemosus elegans is superb. Many others might be mentioned, but enough plants have been enumerated to show that there is no need to have unclothed pillars, but they may be rendered bright with verdure and flowers.—G. ABBEY.

WINTERLY WEATHER—BULLFINCHES.

AFTER such a hard winter we looked for a favourable spring, but in this we are disappointed, for on the night of the 10th inst. we had a few degrees of frost. On the 11th, 10°; on the 12th, 9°, with snow falling each day, and at one time it covered the ground to a depth of 4 inches. Again on the 16th we had 6°, and on the 17th 4°, and this morning, April 22nd, 6°. Apricots here are, I fear, all killed. We have a grand show of Peach bloom on a wall covered with glass coping, and three nets hanging in front. The blossom I think is safe, as there are Potatoes 4 to 6 inches high under the wall, and these have escaped with a touch of frost here and there.

A word about that rogue the bullfinch. It is really disheartening to see what mischief it has done here. Pears, Plums, and Damson trees have been cleared of their buds. These birds deserve all that has been written against them. Although we started with ten birds, which have done their work well, we see only a pair now; the others have gone, after clearing all the trees here.

One little weakness of this "big bully" has not hitherto been noticed. We grow a great number of Violets, and the havoc the bullfinches do with them is really surprising; they keep visiting the Violets all the winter, the seed of which they are more than fond of. They would be most welcome to that, but unfortunately they have a similar fancy for the flower buds, and even when the flowers are partly open they pick them. To me birds are like other pets. So long as they keep their place no one cherishes them more than I do, but there must be a limit.—J. TAYLOR, *Hardwick Grange.*

BIRDSALL HOUSE,

THE SEAT OF THE RIGHT HON. LORD MIDDLETON.

BIRDSALL HOUSE is situate on the north part of the Yorkshire wolds twenty miles from York. The gardens, which are new, are about 600 yards from the mansion. A sunk fence divides them from the park on the south and east sides, and a wall separates them from the high road on the north and west. They comprise an area of eight acres, four of which in the centre are enclosed with a brick wall 12 feet high. The south aspect of the north wall is occupied by a fine range of glass

houses arranged as follows—A corridor 320 feet long and 10 feet wide divided into four parts, two of which are devoted to the cultivation of Peaches, and two are occupied by Camellias, Roses, Heliotropes, and Daphnes planted against the north wall. In the front of the houses is a slate shelf for plants in pots. Under the walk, which is formed of strong Yorkshire flagstone, are the main pipes from the boilers for heating the span-roofed houses. These houses are placed at right angles to the corridor. Arrangements have been made for seven houses, and five have already been erected, good and substantial, and well adapted for the purpose for which they are built. In the centre is a conservatory 85 feet long, 30 feet wide, and 17 feet high. This is filled with Palms, Camellias, Orange trees, Rhododendrons, Lapagerias, and other flowering and foliage plants, Tree Ferns, &c. Noticeable are fine plants of Rhododendron Edgworthii and E. Gibsonii. The pillars and roof are covered with climbing plants, such as Tacsonias, Clianthuses, Jasmines, Acacias, Plumbagos, Coleas and Lapagerias, which are growing luxuriantly, producing a beautiful effect. (See fig. 48.)

On each side of this house is a span-roofed vinery 75 feet long, 25 feet wide, built on Foster's patent iron standard pillars. The Vines in these houses have done remarkably well, and are planted inside in borders, which also extend 12 to 14 feet outside the houses. Supernumerary Vines in large pots are plunged in the borders on each side of the centre walk; they have carried heavy crops and will shortly be removed to make way for the permanent Vines, which were all struck on the place in pieces of turf and planted out when about 2 feet high. The varieties grown are Black Hamburgh, Foster's Seedling, Buckland Sweetwater, Ferdinand de Lesseps, Dr. Hogg, Black Prince, Muscat Hamburgh, Gros Colman, Mrs. Pince's Muscat, Black Alicant, Muscat of Alexandria, Trebbiano, Raisin de Calabria, Royal Vineyard, and Barbarossa.

Fig. 48.—CONSERVATORY AT BIRDSALL HOUSE.

Beyond the vineries are placed two forcing and plant houses each 75 feet long by 18 feet wide, and divided into three parts. They are occupied with Orchids, flowering and foliage stove plants. Noticeable are fine plants of Croton Weismanii, C. Disraeli, C. majesticus, C. undulatum, C. Veitchii, &c., also good plants of Bougainvilleas, Franciscea, and Eucharises; a very fine specimen of Davallia Mooreana, with Adiantum farleyense, A. princeps, A. gracillimum equally good; Cycas revoluta, C. circinalis, Yuccas, Phormiums, &c., promising well. Other divisions are employed for Melons and Tomatoes, and one for Figs in 12-inch pots, which give several heavy crops during the year.

Behind the north wall and opening into the corridor are a lean-to plant house, a fernery, a Mushroom house and potting sheds, so that plants are not exposed to the cold air when conveyed from one house to another. The Mushroom house is large and roomy, composed of brick arches with table in front for blanching Endive and forcing bulbs, pits underneath for Seakale, Rhubarb, &c.

At the north-west corner of the garden is a range of forcing pits five in number, 40 feet long and 10 to 8 feet wide. Mr. Wadds, the gardener, speaks very highly of this range for forcing French Beans, Potatoes, and Cucumbers. A space at the back of these pits is left for a lean-to vinery and a Peach house. At the north-east corner opposite is a space left for Fig and other houses. An Apricot shed occupies a space in the back yard 100 feet by 12 feet facing the east. This is merely a shed without front lights, and is similar to Mr. Pearson's of Chilwell Nurseries, described on page 206, vol. xxiv., of this Journal. The young trees have made remarkable growth. This is a most useful house for many purposes.

The low span-roof house in the back yard is occupied with Gardenias in pots. A water tank fills up one side through which hot-water pipes pass, thus giving out the moist atmosphere these plants luxuriate in, and producing blooms sometimes as large as Camellias. The plant house on the north side contains a number of fine young Azaleas suitable for house decoration. Great quantities of zonal Geraniums, Cyclamens, and Chrysanthemums are also prepared there for winter use.

On the north wall is a range of sheds, consisting of office, Grape room, fruit room, tool shed, washing shed, root shed, labourers' mess rooms, boiler house, stable and cart shed. The houses are heated by three of the Trentham Improved Cornish boilers and a small tubular. One of Cowan's lime-burning apparatus is fixed so that it can be used when lime is required for estate or garden purposes, and continues to work very well. The garden walks are of a sufficient width to admit carriages or carts, and are edged with dark-coloured ornamental tiles. As

gravel is very scarce in the neighbourhood the walks are made with rough asphalt with gravel at the top, and are very solid and durable.

The enclosed garden is divided into four quarters with borders round the walls. Eight lines of espalier fences run across the garden from north to south, and are covered with dessert Pear and Apple trees. The slips of ground outside the inner garden are planted with fruit trees. The walls are all covered with strong galvanised wire placed perpendicularly and 6 inches apart, which answers well for all kinds of training.

On the south wall Peaches, Nectarines, and Plums are trained; on the north Morello Cherries; on the east and west Apricots, dessert Cherries, and Pears. The trees are in fine robust health, and well trained. Every advantage has been taken to improve the already good friable loam by burning the turf in the open quarters and by bringing hundreds of loads of soil from different parts of the estate, and by draining the ground, also laying water pipes in all parts of the garden for watering in hot weather. Ornamental iron gates are fixed in the three principal entrances to the gardens, and have a very good appearance. The gardener's house is situated at the south-west corner of the garden, and is well built of freestone with every convenience for comfort. The young men's rooms are in the frame yard on the south wall facing the range of sheds, a very suitable and healthy place for them. The gardener's house, men's rooms, and sheds are lighted with gas and supplied with abundance of good water obtained from the hills above the gardens.

The whole has been laid out and constructed since 1873. The glass houses, heating apparatus, &c., were all erected by Messrs. Foster & Pearson, horticultural builders, Beeston, near Nottingham, and are most creditable to those gentlemen. The plan was by Mr. R. Wadds, his lordship's present gardener.—VISITOR.

PORTRAITS OF NEW AND NOTABLE PLANTS.

LOASA VULCANICA. *Nat. ord.*, Loaseæ.—"M. André, who introduced this pretty plant into cultivation during his expedition to the Andes of New Grenada and Equador, states in the 'Revue Horticole' that he found it in June, 1876, forming a common branched bush on the banks of the river Pitaton, also occurring at the foot of the volcano of Corazon, on the western slope of the Andes, at an elevation of 9000 to 10,500 feet above the sea. There are specimens in the Kew herbarium gathered by Seemann in August, 1847, at the village of Gonzamma, also in Equador. Like the other members of its family it is covered with stinging bristles."—(*Bot. Mag.*, *t. 6410.*)

INULA HOOKERI. *Nat. ord.*, Compositæ.—"A very free-flowering perennial, with leaves of a remarkably delicate membranous texture and faintly sweet-scented flowers. Unfortunately it withers rapidly after being cut, so that it can be of little use for decorative purposes except in the garden. It is a native of rocky places and the interior valleys of Sikkim at elevations of 7000 to 10,000 feet, where it replaces the very similar I. barbata, *Wall.*, of the western Himalaya. It was introduced into cultivation in Kew by seeds sent by Dr. Hooker from Sikkim in 1849, which flowered in 1851; and specimens from which are preserved in the Kew herbarium. It was again raised two years ago from seeds sent by M. Gammie, also from Sikkim."—(*Ibid.*, *t. 6411.*)

CUPHEA LANCEOLATA. *Nat. ord.*, Lythrarieæ.—"This belongs to the same section of the large genus Cuphea as the old C. silenoides, *Nees*, but is a taller-growing, more erect, and much handsomer plant, with strict (not flexuous) branches, long calyx-tubes, and much larger flowers. Cuphea lanceolata was introduced into English cultivation as long ago as 1796 by Mr. Anderson, then curator of the famous Apothecaries' garden at Chelsea, but was soon lost, no doubt from its having been treated as a stove plant, as directed in the 'Hortus Kewensis.' It was reintroduced at Hamburgh in about 1835 by Messrs. Booth, and was flowered in England as a hardy plant by Messrs. Osborn of Fulham, soon again to be suppressed in England in the rage for new things and neglect of any hardy herbaceous plants but the gaudy 'bedding-out stuffs.' It, however, held its place on the Continent, from whence seeds were received at Kew some years ago. It flowers annually in the herbaceous grounds, and has a very handsome appearance in September and October, presenting in its robust habit and erect growth, larger, deeper-coloured petals, with no pale border, a marked contrast to the half prostrate flexuous-stemmed C. silenoides."—(*Ibid.*, *t. 6412.*)

ANEMONOPSIS MACROPHYLLA. *Nat. ord.*, Ranunculaceæ.—"It was discovered in North Japan by the Dutch traveller and naturalist Siebold, and described by him and his coadjutor in publication, Zuccarini, in the Transactions of the Bavarian Academy of Sciences, about 1847. Since then it has been collected by Tchnonoski in 1864, and specimens communicated by him to Maximovicz, the very learned Russian botanist, who spent many years in the exploration of the Japanese Archipelago, and by whom magnificent dried specimens were sent to Kew. Anemonopsis is a near ally of Cimicifuga, differing in its very large Anemone-like flower and in the shape of the petals. It consists of but one species."—(*Ibid.*, *t. 6413.*)

NOTES ON VILLA AND SUBURBAN GARDENING.

VEGETATION is this year in a very backward state, for on the 1st of April we have often observed trees and crops in general in a more advanced stage than is the case this year on the 1st of May. Walls in the south are still covered with the fading blossoms of the Apricot, Peach, and Nectarine. The Cherry trees are only now showing their snowy white blossom, while Plum, Pear, and Apple trees have not yet unfolded their flowers, thus promising a fruitful autumn; therefore, while we lament the backward state of the spring we shall be doubtlessly rewarded in the end.

Lawns and walks will now require to be kept in good order; the grass grows rapidly, and needs mowing about once a week. Dandelions, Daisies, Plantains, and other weeds are more easily eradicated now than at any other time of the year. Gravel walks should be cleared of all weeds, and also frequently swept and rolled, especially after rain, as well-kept walks add a charm to any place.

In the flower garden such plants as were not killed by the past winter—as Wallflowers, Pansies, Myosotis, &c.—are now coming into flower, and must be kept free from weeds. Chickweed frequently springs up between the plants, and if not checked will very soon smother them. Merely passing the hoe through the soil on a dry day will put a stop to their encroachments; the same remarks equally apply to beds, borders, or mixed shrubberies, which should all be kept free from weeds.

Hardy and half-hardy annuals may still be sown where it is intended they should remain to flower. In mixed borders they are very gay, and should be so regulated that the taller-growing species are placed at the back. Mignonette should be sown largely, especially near walks and windows. Lupines, Larkspurs, and Sunflowers are showy plants and suitable for shrubbery borders. Nasturtiums are not only showy annuals, but are largely grown for the sake of their seeds, which are gathered in a half ripe condition and pickled. They may be grown in any open out-of-the-way corner, the tall-growing varieties being useful for covering palings or hiding any unsightly building; they are not very particular as to soil, but the more open the position the more freely they will bloom and seed. The dwarfer-growing varieties are very showy and do not require any supports. A very good plan is to sow the seed of the tall growers in clumps or circles, and place three or four bushy pea sticks for the plants to climb up; in this way they become very beautiful, and produce a large quantity of seed for pickling.

BEDDING PLANTS.—These must now be hardened by removing them from under glass as soon as possible. Many contrivances are extemporised to afford them shelter during the hardening process. One very simple plan is to place them in beds about 4 feet wide and bend some stout stakes over them, then covering with archangel mats every night, which are generally sufficient to protect the plants from cold winds and a few degrees of frost. Undoubtedly the best method is to harden them off in cold frames, but few gardens have sufficient for the purpose. Push on recently struck cuttings of Alternantheras, Coleuses, Lobelias, &c., so that they may be well established plants when required for planting out. Beds that are unoccupied by spring plants should be trimmed and turned in readiness for receiving the summer plants as soon as the weather is suitable.

KITCHEN GARDEN.—In this department there is now plenty of work to be done. The earliest sown Onions, Parsnips, &c., are now well above the ground, and will be greatly benefited by having the soil loosened between the rows with a hoe; this will also kill the small weeds. Cabbage crops are better for having the ground stirred between the rows. Advancing crops of Peas and Broad Beans should have the earth drawn on either side, and the Peas being staked in accordance with the height the varieties usually attain, make other sowings for succession. Champion of England, British Queen, and Ne Plus Ultra are tall-growing heavy croppers, and are most excellent-flavoured Peas, but usually grow about 6 feet high. Of dwarfer kinds Veitch's Perfection, Maclean's Premier, and Best of All are superior varieties, usually attaining the height of 3 feet. Spinach will now be tolerably plentiful; that sown in the autumn which has been

most useful during the winter will be followed now by sowings made between the rows of Peas. Another sowing should be made on a north border for succession. The ground occupied with the winter crop may be heavily manured, dug deeply and sown with Beet, which thrives in a deep rich soil. Dell's Crimson and Pine Apple Short-top are very good varieties; the roots do not attain a very large size but are very highly coloured. Sow in rows about a foot apart, and as the seedlings appear above ground thin the plants to 6 or 8 inches apart. Potatoes coming through the soil should have the soil drawn over them for a short time yet. Sow Lettuce, Radishes, and other small salads for maintaining a supply. If there should not be sufficient plants raised of Tomatoes, Vegetable Marrows, and ridge Cucumbers for planting out as soon as the weather becomes warmer, make other sowings immediately, and harden off those plants which are already becoming established.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE weather having been very unfavourable, Onions, Parsnips, and Carrots, which under ordinary circumstances would have required thinning, are only just above ground. Thinning is an operation best done before the plants become large, and ought not to be delayed beyond the time when they can be readily handled. Button Onions are in demand in most places for pickling and other purposes; they may be obtained by transplanting thickly those which are drawn from the main crop when thinned out. These also give the requisite supply of spring Onions without interfering with the chief beds, which is of importance where appearances are studied, as they always should be in every garden. Parsnips should be thinned 9 to 12 inches apart, whilst Carrots may be left 4 or 5 inches apart in order to give a supply of them in a young state, which may be obtained without detriment to those which remain for the crop, the long varieties being finally left at from 9 to 12 inches apart, whilst 6 inches will suffice for the shorter varieties. Chicory and Beet for the main crop should now be sown. The plants should be thinned 9 to 12 inches apart according to the nature of the soil. Salsafy and Scorzonera should be thinned 6 to 9 inches apart. The main crop of French Beans should be sown; Negro Long-podded and Canadian Wonder are desirable varieties. The seed should be placed 4 to 6 inches asunder in drills 2 feet 6 inches apart, and be covered about 2 inches deep. The plan of sowing Scarlet Runners in double drills is occasionally practised: single drills, however, are preferable, the beans being 6 inches apart and 2 inches deep. As soon as the plants appear raise the soil on either side of the rows, which will afford shelter; and when in free growth mulch with 4 to 6 inches of short manure, which will prove very advantageous, particularly in light soils. Where long sticks are employed the rows should be 6 feet apart, but with shorter sticks, say 3 or 4 feet, the rows should be that distance apart, stopping the plants when they reach the top. Where sticks are not procurable sow the seeds in rows 3 feet apart, afterwards keeping the plants stopped. Encourage growth by frequently stirring the soil between the rows of growing crops. Assist the Tripoli Onions by watering the crop if necessary with weak liquid manure, care being exercised in removing those for use so as to leave the most promising if fine bulbs are required. Take advantage of suitable weather to use the hoe wherever weeds are appearing, as they are most expeditiously destroyed in the seedling state. Sow a good breadth of late Peas, utilising the space between the rows for Spinach and Radishes. In light shallow soils it is desirable to take out a trench as for Celery, manuring well, and then filling, sowing the Peas on the level. Another sowing of Cauliflowers should be made, and Broccoli for late use, also Borecole and Savoy, especially the dwarf varieties, which require but little space and are desirable for their very superior quality. Make another sowing of Turnips, and if the weather be dry when the plants appear dust them with quicklime early in the morning with a view to prevent the ravages of the fly. Prepare the trenches for Celery, removing the soil about a foot deep and 18 inches wide, placing in 6 inches of well-decomposed manure, and mixing it with a similar depth of soil; the spaces between the trenches may be 3 feet, sowing a row of Lettuce on each, which will afford a fine crop during summer. Sow Broad Beans at intervals so as to meet the probable demand.

Forcing Department.—Prepare beds for Vegetable Marrows and ridge Cucumbers, which may be planted under handglasses as soon as the beds are ready to receive them. Supply Potatoes with water or weak liquid manure between the rows until the tubers attain their full size, when they should be kept rather dry. Air should be admitted very freely, withdrawing the lights whenever the weather is favourable. Supply Carrots liberally with water, sprinkling them overhead every morning. Attend to the stopping, tying, and watering of early Tomatoes, shifting those for outdoor planting into 5 or 6-inch pots, growing them strong and hardy.

HARDY FRUIT GARDEN.

Continued wintry and dull weather necessitates watchfulness of the blossoms of fruit trees, for with the wind eastward there is no telling how soon we may have bright weather with frosty nights, and it is well to have covering material in readiness so that it can be employed promptly in case of necessity. The tender fruit is more susceptible of injury from frost than the blossom; but whenever the weather is mild the covering is best removed, as if it is left on the trees it then does more harm than good. Apricots have set, or are setting, well. Disbudding is not much practised with the Apricot, neither is it desirable, as it only induces undue vigour in some parts and favours the production of gum. If done at all it should be practised early, being confined to the forerights and any ill-placed growths; besides, the foliage is the best of all protectors for the young fruit, and should not be much interfered with until the fruit is fairly sheltered by it. The disbudding of Peaches and Nectarines requires to be done gradually, and must be commenced early, as when the growth is considerable the root-action is proportionate, and the removal of the shoots in that case diverts the sap into other channels, and the foliage not being capable of elaborating it, stagnation ensues with its attendant blister, &c. When the trees are in full blossom commence disbudding by taking off the foreright and such shoots as are too close to the wall or badly placed at the back of the branches, going over the trees frequently, thinning out the shoots a few at a time so as to secure regularity of growth. In all instances a growing bud should be retained at the base of the present year's bearing wood, and a growth retained on a level with or above the fruit, which if not required for extension should be stopped at the second or third leaf. Train-in at full length shoots that are required for extension. Upon the branches not furnished with bearing wood, shoots must be left at 12 to 15 inches distance apart to afford bearing wood for next season.

Pear blossom is advancing rapidly and should have protection in case of severe frost. The prospect of Pears, indeed all hardy fruit, is very promising. In the case of Pear or Apple trees that from over-luxuriance do not fruit satisfactorily, a ring of bark about the eighth of an inch wide removed all round down to the wood will in most instances result in the spurs forming fruit buds. Operating upon a few branches at a time or season, and so checking their vigour, is often more satisfactory than root-pruning, not only inducing fruitfulness but generally improving the size and quality of the fruit. Grafting may yet be performed; indeed, in cold localities the stocks are in capital order. Keep an eye upon the leaves of Apricots and promptly destroy the leaf-rolling caterpillar. Aphides will soon make their appearance upon Peaches and Nectarines, and are best destroyed after the fruit is set by syringing with tobacco juice diluted with six times the quantity of water, or nicotine soap 2 ozs. to the gallon of water. Should mildew appear dust at once with flowers of sulphur. Look out in time for the Gooseberry caterpillar, and dust the bushes upon its first appearance with white hellebore powder. Though the winter has been a severe one, there appears to be no deficiency of snails' and slugs' eggs with the larvæ of other vermin which we see in unpleasant numbers as the ground is being worked, but the birds are very active, particularly thrushes and blackbirds. Ply the hoe frequently among plantations of bush fruit and Strawberries to destroy weeds and render the surface loose.

FRUIT HOUSES.

Pines.—At this season there is a large proportion of young plants in course of preparation for fruiting; and as the future plant depends very much upon the nature of the treatment during the early stages of growth, it is desirable to have such plants separated from the fruiters, so as to secure robustness of growth and sturdiness of habit. The solar heat should be taken advantage of in maintaining the requisite warmth, which, with a moderate degree of moisture in the house, will produce an invigorating atmosphere not to be equalled under other conditions. In the case of young growing plants care will need to be exercised, under no circumstances closing the house entirely at a very high temperature, as that will induce soft, weakly, attenuated growth. Keep the plants in a position to obtain plenty of light and air, and avoid crowding them thickly. Syringe the plants about twice a week, keeping the atmosphere moderately moist by sprinkling the floors, &c., occasionally, employing fire heat only to maintain a temperature of 65° at night, falling to 60° in the morning, with 70° by day. Commence ventilating at 75°, increasing or diminishing the supply of air so as to maintain the temperature throughout the day at from 80° to 85° or 90°, with abundance of air, closing the house for the day at 80°. With large panes of glass a slight shading for an hour or two at midday is beneficial when the sun is very powerful. The bottom heat should be maintained with regularity at from 80° to 90°, and as the beds settle down add to the surface fresh material to keep the pots from being too much exposed. Attend to watering, applying weak liquid manure or guano water liberally on every occasion when needed. Scarcely too much moisture can be employed about the houses in which fruit is swelling off. As the fruits become ripe remove the plants if in pots to a cooler place, as they keep sound for a longer period at this season than at any other, which is a great advantage, as other kinds of fruit are scarce. As the suckers of fruiting plants become large enough to be handled screw out the hearts of those which will not be required for stock.

One, or at most two, suckers are ample to retain unless the stock is desired to be largely increased.

Melons.—The earliest fruits will be getting heavy, and in the case of plants on trellises will require supports if not already afforded. Tables of half-inch deal about 6 inches square, with a hole bored at each corner, are useful, two pieces of string being passed through the holes from the top, coming underneath the table, and then passed through again to the top, being looped up to the trellis at such distance and manner as will carry the fruit and relieve the Vine of its weight. Attend to stopping the laterals after the fruits have swelled off, maintaining a good moisture by syringing the walls as well as foliage at about 3.30 P.M., damping the floors several times a day in hot weather. Water or liquid manure will be required about twice a week. The night temperature should be maintained at 70°, 75° by day from fire heat, and 85° to 90° with sun heat. Ventilate freely, but avoid admitting too much air at a time, with a view to reducing the temperature; but commence at 75°, and increase or diminish gradually according to external influences. When the fruit is full sized and advanced for ripening gradually, reduce the supply of water at the roots, but not so as to cause the foliage to flag, and allow a circulation of rather dry warm air when ripening, which improves the flavour considerably. Attend to plants in process of setting by daily impregnation, pinching out the growing points, at the same time one or two joints beyond the fruit, affording a well-ventilated and dry atmosphere, with water at the roots only to prevent the foliage from flagging, being careful not to allow one or two fruits on each plant to take the lead of the rest, and not fumigating or using the knife during the setting period. If canker appear at the collar subdue it with freshly slaked lime. Sow for succession, continuing to train and regulate the growth of young plants, removing every alternate lateral. Plants swelling off the fruit in pits or frames should be well earthed up, the laterals thinned out, and the fruits raised on small flower pots.

FLOWER GARDEN.

Gladioli should be planted at once; the commoner varieties have a fine effect in mixed borders. Finish planting any reserve Carnations, Cloves, Pinks, Pansies, and Violas; they, with Calceolarias, requiring to be well established before hot weather sets in. The beds should be prepared for them, especially Calceolarias, which delight in a cool bottom, that being of more consequence than deluging the surface with water. A good layer of well-decomposed manure should be placed 6 inches from the surface, and after planting, surface the beds with the same material. The sowing of hardy annuals has been impeded by the weather, but should now be proceeded with. Those that were sown in pots will soon be fit to plant out, and owing to the backwardness of the season they will be acceptable. The different kinds of half-hardy annuals, such as Asters, Stocks, Zinnias, &c., are readily raised in cold frames, sowing the seed rather thinly in drills in a few inches of rich light soil, keeping the soil damp and the frame close until the seedlings appear, when they must have air freely. Plants raised by such means are better than those coddled in heat. Seed of Zea, Ricinus, Chilian Beet, Amaranthus, &c., should be sown in gentle warmth; the plants so raised will be found more satisfactory than those sown at an earlier date. Solanums, Chamæpeuces, Acacias, Melianthuses, &c., sown in February or March, should be potted and grown on in gentle heat, so as to have them strong. Any Cannas not yet started should at once be placed in gentle heat. Caladium esculentum may be treated in the same way, also Aralia papyrifera and other fleshy-rooted plants. Coleuses, Alternantheras, Iresines, and other tender quick-growing plants may still be propagated, as there is plenty of time to grow them strong by the early part of June. When such plants are struck, as well as Lobelias, Verbenas, Ageratums, &c., they may be pricked out in frames containing from 4 to 6 inches of leaf soil or old Mushroom-bed material with an equal proportion of loam, with which they may be lifted with good balls. This plan is far preferable to potting, saving time and labour in watering, &c. It will now be necessary to place the hardier kinds of bedding plants in pits and frames, so as to gradually inure them to the sun and air.

TRADE CATALOGUES RECEIVED.

W. Caudwell, F.R.H.S., The Ivies, Wantage.—*List of Polyanthuses.*

Simon-Louis Frères, Metz, Lorraine.—*General Plant Catalogue.*

Stephen Brown, Weston-super-Mare.—*Catalogue of Bedding Plants.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

CARPET BEDS (*H. E. B.*).—In beds of this description robust growth is not required, but rather a dense compact even surface. To insure this plant thickly, leaving only 2 or 3 inches of space between the plants that are likely to spread and become interlaced. Of such your list only includes Cerastium, Sedum acre elegans, Mentha Pulegium gibraltaricum, and the Iresines. Echeverias should have no side shoots, should be uniform in size, and if the soil is poor the plants must almost touch; if rich, a space of 2 inches may be left between them. Very poor soil is unsuitable, so is very rich soil: the first imparting a meagre appearance to the growth and a lack-lustre hue to the foliage; the other inducing rampant growth, also with a loss of brilliancy in the colour. Oxalis rosea is not a good carpet-bedder, neither being sufficiently durable nor manageable. Discard it therefore for Iresines Lindeni and Herbstii, both bearing pinching and pegging well. Of light grey-leaved plants Cerastium is an old favourite of proved merit; Achyrocline Sandersonii is also a fine hardy grey. None of the plants you purpose buying should be planted out till the third week in May; and even then, if the weather become cold and wet, Iresines are apt to shed their foliage. It will be better, therefore, to defer buying for a fortnight, and so avoid all risk. We would suggest that you have spring flowers prepared for the beds by next autumn. They are comparatively inexpensive, three or four shillings buying enough seed for a large garden. The beds will be sheets of bloom from April till June, and your summer plants may then follow them at once.

WINDOW PLANTS (*A Cottager*).—Amongst the best of window plants are Ficus elastica, Dracæna terminalis, D. gracilis, and D. congesta, with such free-growing and ornamental Palms as Latania borbonica and Seaforthia elegans. Any three of the above would be suitable for the first class you quote of your local show. Plants may be purchased at from 3*s.* 6*d.* to 5*s.* each according to size. A single specimen flowering plant means a plant of good shape and well flowered. A good Fuchsia would be suitable for the period you name. Marginata is one of the best light varieties for your purpose; Noblesse is a good dark; and the Earl of Beaconsfield a free-growing salmon variety. Purchase strong and healthy plants in 5-inch pots, and grow them on liberally, stopping the shoots occasionally, and pinching off the flowers until within six weeks of the show. Your Roses are not to be depended on for the purpose required.

CROPPING VEGETABLE GROUND (*Idem*).—Crop the ground as you propose. Three good Potatoes are Myatt's Prolific, early; Snowflake, second early; and Paterson's Victoria, late. Useful Peas for succession are Dickson's First and Best, early; Champion of England, 5 feet; Veitch's Perfection, 3 feet; and Ne Plus Ultra, 6 feet; sowing them in the order named.

LILIUMS (*C. P. L.*).—We do not know of any Lilium bearing the name which you have submitted. Have you quoted the name correctly? and if so, whence did you procure the bulb or plant?

FERNS IN CASES (*Maria*).—With good management Ferns in Wardian cases make free and satisfactory growth. Instead of the plants diminishing in size we have frequently seen them become too large for the miniature structures. The condition of your plants is due to unsuitable soil or defective management of the atmosphere of the case; or it may be, the case is placed in an unsuitable position—too hot and exposed in summer, and too cold in winter. As you do not afford us any data whereon to found an opinion we are unable to suggest a remedy for the failure you have experienced.

STEPHANOTIS FLORIBUNDA UNHEALTHY ((*A. B.*).—The roots sent are quite insufficient to enable us to determine what insect is attacking them. You might, perhaps, check its increase by watering with paraffin at the rate of half an ounce of the oil to a gallon of water thoroughly mixed with the aid of a syringe; but a surer mode of obtaining a healthy plant would be to grow it in soil obtained from another source, the soil you are now using being evidently unsafe for the plant in question.

WATER MELON CULTURE (*A Young Gardener*).—The treatment of Water Melons does not differ materially from ordinary Melons, as they succeed admirably in heated frames; but the plants require rather more space with plentiful supplies of water. The fruit attains to a large size, some kinds having been grown to a weight of 40 lbs.

SEEDLING TACSONIA VAN-VOLXEMI (*Idem*). —They will flower in the second or third year if the plants are afforded liberal treatment, and the shoots trained rather thinly near the glass in a light airy house having a greenhouse temperature.

FIGS IN POTS CASTING FRUIT (*A. B. C.*).—It is difficult to secure very early crops of Figs from trees in pots without the aid of bottom heat, as the temperature and moisture are not sufficiently equable—a check of any kind causing the fruit to drop. From the very vigorous growth the trees are making we think the pot room is excessive; they are probably being grown at too great a distance from the glass, or perhaps beneath Vines. Stop the shoots and afford plenty of light, for without stout short-jointed wood it is needless to expect fruit. The temperature is too high at night, 60° to 65° being ample.

RAISING SEEDS (*C. S.*).—You will have no difficulty in keeping pure stocks of the hardy annuals and perennials you name, but Begonias and Petunias are sportive, and you had better sell the seeds in mixture. Balsams come fairly true if large batches are grown and the plants are grouped in their respective colours. The nearer the flowers approach the double form the better will the quality of your strain be. You may obtain the seed from any part of the plants that yield it. You will have no difficulty in the case of Peas; but Broccolis, indeed all plants of the Brassica family, can only be preserved pure by growing the varieties in large batches, and at wider intervals than your limited ground affords.

CINERARIAS (*G. R.*).—The flowers arrived in a very flaccid state, so that we are unable to remark on their form and substance. The self colours are rich, and the colours of the edged flowers are clear and well defined.

PANCRATIUM SPECIOSUM—ANTS (*Percy Barron*).—This plant requires a compost of about three parts sandy loam to one of leaf soil, and it luxuriates in a brisk moist heat with an abundant supply of water during growth. After flowering, which usually occurs in July or August, the plants should be kept moderately dry and cool until growth again commences. The ants may be killed by placing the pots in water for several hours. Paraffin at

the rate of half an ounce or about a table-spoonful to a gallon of water and applied to the roots does not injure free-growing plants, and it renders the soil distasteful to the ants.

TREATMENT OF MIXED FLOWER BEDS (*K. Y.*).—There is no need to have the beds or borders deeply dug at any time, except when re-arrangement is necessary from the plants becoming too large. A top-dressing of some kind should be given in early winter, and it may be lightly pointed in with a fork in spring. The positions of the plants which die down in winter, also that of bulbs, should be indicated by a hard-wood peg placed by each, and then there is no difficulty in avoiding disturbing them when pointing over the surface, a loose surface being necessary, but the roots must not be disturbed, or as little as possible. Division should be done in early spring just when the plants are making fresh growth.

FLOWER BORDER ARRANGEMENT (*Irish Subscriber*).—The question of the arrangement of flower borders depends so much on the plants in stock or that can be obtained the most readily, that a practical reply cannot be given without information on those points is supplied. Even then our rule is to criticise proposed plans of arrangement, and to advise on them generally rather than to propose modes of planting that might be inapplicable to a particular garden, owing to circumstances of which we are necessarily not cognisant. If you will name the plants you possess or can obtain, together with your own ideas of their arrangement, we will readily advise you on the question on which you desire information.

VINE BORDER MAKING (*Idem*).—If the soil of which the border is to be chiefly composed is at all heavy in character or rich, the limestone road scrapings would form an useful addition; but if the soil is light and naturally porous the addition proposed would not be beneficial.

EXHIBITING ASTERS (*J.*).—A box made of deal, and painted dark green, about 2 *feet* long, 15 inches wide, 6 inches deep at the back, and 4 inches in the front, would be suitable for twelve blooms, tubes being inserted at regular intervals for holding water for the support of the flowers. Prizes are usually offered for both imbricated and quilled Asters. Consult the schedule of the show at which you intend to exhibit.

CROPPING VINES (*Jas. Chapman*).—Your Vines have evidently been overcropped. About a pound weight of Grapes to every foot run of the rods would be a fair crop for Vines in the condition in which yours appear to be.

CUCUMBER HOUSE (*Old Subscriber*).—It is not desirable to force Spiræas, Roses, &c., in a Cucumber house, and it is too hot for forcing Seakale, Rhubarb, &c., the produce being inferior to that secured by a more rational system. A suitable width for a lean-to is 10 feet, and the height of the back wall may be about the same. The front wall may be taken up to a height of 3 feet in front, lights being necessary, so that you will only require a glass roof and glass at the ends above the brickwork, which will lessen the expense considerably. In front of the house should be a bed 4 feet 6 inches wide, and this should be furnished with two rows of 4-inch pipes for bottom heat, fixed at about 18 inches from the top of the bed so as to allow space for rubble, with which the pipes should be covered to a depth of 6 inches, and allow for a foot of soil. Four rows of 4-inch pipes will be required for top heat—two along the front and the others in the pathway next the bed. You will need a trellis at 12 to 15 inches distance from the glass, and the upper part of the lights must be made to open the entire length of the house for ventilation.

MUSHROOMS (*J. R.*).—The bed may be up at once with a view to the production of Mushrooms during the summer and early autumn, or it may be made up in August so as to have Mushrooms in autumn. For the mode of making the bed see our last week's issue.

GLASS EDGING TILES (*Subscriber*).—If you can state about the time to which you refer, and will oblige us also with your name and address, we will endeavour to forward you the information you require.

DESTROYING RABBITS (*J.S.*).—You can shoot them with the permission of your employer without having a licence, he or you paying licence for the gun.

INSECTS ON CAMELLIAS (*T. W.*)—It is a species of coccus, and can only be destroyed by sponging the leaves with soft-soap water, Gishurst compound, or some other approved insecticide.

BANISHING ANTS (*A Young Gardener*).—An application of fresh Peruvian guano will often drive ants away, and a mixture of paraffin and water syringed about their runs will effect the same purpose. They may also be trapped by placing pieces of raw meat in dishes where the ants abound, and when numbers of the insects are congregated on the meat pour hot water over them.

NAMES OF PLANTS (*H. R. C.*).—Æschynanthus speciosus. (*Regular Subscriber*).—Your Hollies are—1, laurifolia; 2, Hodginsii; 3, senescens; 4, argentea marginata; 5, aurea angustifolia. (*A. W.*).—The flowering shrub is Forsythia viridissima. We cannot recognise the Thyme. Your only certain mode of establishing a true stock is by inserting slips from the plants in your possession. (*T. R. C.*).—No. 1 appears to be an unhealthy spray of Skimmia japonica; 2 is a Veratrum, but no one could determine the species from the imperfect specimen sent; 3 is Farfugium grande. (*M. M.*).—1, Abies Douglasii; 2, A. orientalis; 3, an Aconitum, probably A. versicolor. (*Ellen L. McA.*).—1 we cannot name from the example sent. Can you send us a flowering spray of a full-sized leaf? 2, Begonia lucida. The Anemone is A. apennina. Roses next week.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

THE FEEDING AND FATTING OF SHEEP.

(*Continued from page 315.*)

QUITE apart from the fact of certain breeds of sheep being best adapted for certain soils and climates, we have evidence and statements from the most able and experienced agriculturists informing us as to the comparative numbers of the different kinds of sheep which may be fattened upon the same quantity of food. The amount of food required to fatten 100 Cotswold sheep would fatten equally well 105 Leicesters, 115 Hampshire Downs, 115 cross-bred between the Cotswold and Southdown, and 120 pure Southdowns. We have from these experiments also ascertained the comparative profit yielded by the above-named breeds, the value both in mutton and wool. The cross-bred sheep yield the greatest profit in money value, the Hampshire Down and West country Down next, then follow the Cotswolds, then the Leicester, and last of all as to profitable feeding and fattening are the pure Sussex Downs. We may adduce the evidence of various experimenters, but for the most part they point to the same conclusions, and they represent the result of our own practice in sheep-feeding and fatting during a period of many years. Foresight will be required to determine what proportion of the stock required should be purchased previous to the third week of April or first week of May. That time is the earliest period the rye will be fit for feeding, which, together with a run in the pastures, will carry the tegs on with a few mangolds and meal until the trifolium is ready—about the first week in May. At this time all the stock required for the summer fatting may be purchased, and the whole flock be fed with artificial food as well as the green fodder crops, receiving the feeding stuffs, whether of oil cake, decorticated cotton cake, beans, peas, maize, or barley, all in meal, because we like to reserve a few mangolds, followed by cabbage, to be passed twice through the cutter and placed in troughs with the meal of either kind mixed and strewed over the cut roots. In this way each sheep in eating its share of roots is bound to receive its share likewise of the meal, whereas by feeding in any other way we find the stronger sheep get the lion's share and the weakest but very little: thus both are often injured, some sheep getting too much, others too little. We have however sometimes, when the supply of mangold, cabbage, &c., has failed us, passed some vetches and rape through the chaff cutter so that the meal may adhere to the moist and fresh-cut green fodder. This mode of feeding also sets at rest the question of waste, for unless the meal is absorbed by moist food it is sure to be wasted more or less; but the worst system of all is to give the sheep broken cake or whole grain, as the quantity intended for each animal cannot be assured to them, besides there is always a portion dropped outside the troughs.

We have next to consider the quantity of each kind of feeding stuffs which may be profitably given to the animals; and although from the commencement of feeding an increased allowance should be given as time goes on, we must decide to what quantity each animal should be limited, and in order to assist in deciding this point we will quote some tables of the value of feeding stuffs as obtained by experiments in actual feeding of cattle and sheep—

100 lbs. of good pasture hay is equal in nourishment to—

	lbs.
Clover hay (made when the plant is in full bloom) ..	90
Saintfoin hay	89
Green clover	410
Green vetches	457
Wheat straw	374
Oat straw	195
Pea haulm	153
Mangold	339
Turnips	504
Carrots	276
Swedish turnips	308
Wheat	45
Barley	54
Oats	59
Peas and beans	45
Wheat bran	105

It will be noticed that we have made no comparison in the feeding value of oil cake in this list—first of all because it varies so much, being often a compound, that would be likely to deceive the feeder of sheep, and therefore we prefer to some extent to fall back upon the question of cost. There is one point, however, which stands alone, that is that pure linseed cake is more valuable when used by itself than linseed. In case, however, linseed should be used, its fattening power is so great that some modifying food must be used with it, such as beans, oats, maize, barley, &c. Now, whatever may be the feeding value of the various articles sold as sheep or cattle food, the home farmer must use his intelligence, or otherwise he must learn the actual feeding value by analysis of the articles used, and then refer to the price of the various articles. At the same time he must either know, or study

to do so, which sort of food is best suited to be used in conjunction with roots or green fodder, in order that not only a good combination of materials may be used to fatten the sheep, but also the best kinds of artificial food capable of supplementing the vegetable produce of the farm, and at the same time as far as can be assured by judicious practice the health of the animals. It must be understood that Nature never stands still; sheep in feeding will either improve or retrograde, hence the extreme necessity of studying the health of the stock under the care and superintendence of the home farmer, and to assist him in his business we will make a few remarks to enable him to arrive at a practical conclusion upon the subject. The point to which we would call attention is a more economical system of feeding sheep, and at the same time leave the land in superior condition for the succeeding crops of corn. As, however, the subject of fatting sheep with the summer produce of the land is what we now have to consider we can only to a limited extent refer to the use of root food. This, however, we hope to notice at greater length and more fully under the second heading of our subject—viz., The Winter Feeding and Fatting of Sheep. In fatting sheep in the summer we have chiefly to do with green fodder, such as vetches, rye, trifolium, &c., and a few early turnips. In this case the table given above will show the comparative value of these green fodder crops, and thus enable us to counteract a too-relaxing tendency which they produce by using such foods as beans, barley, peas, and lentils. In doing so we must also consider what is the change of food the sheep get besides the green fodder, because if they get a run once in the twenty-four hours upon old lea, second-growth clover, and similar grazing they will often require less of the counteracting effect of the astringent and flesh-forming foods just named.

In noticing the practical daily management of the sheep commencing with feeding off rye, if the animals have no other change they should have two foldings of this green fodder every day, as much as they will eat without waste; they should also have a limited quantity of mangolds, only just sufficient to take up the meal which should be mixed with them. This food they should receive twice a day; and it is of the utmost importance that the sheep should be kept back and not allowed to intrude upon the shepherd whilst in the act of placing the food in the troughs. Let the home farmer bear in mind that he must often see to this himself and not always trust to the shepherd: this is one of the many details of the farming business so essential to success, and which may be aptly compared to the counter work of the tradesman. We next come to the feeding with trifolium. This should consist of the three varieties—the early, the second early pink blossom, and the latest white sort; and it must be remembered that sheep can only be properly fed with this until it first comes into bloom, hence the necessity of the three sorts as the feeding season is so short. Should the trifolium become rather old the haulm should be cut up and placed in cages, so that the unconsumed portion may be easily removed and not interfere with the cultivation for the succeeding crop. Winter vetches and oats will next be fit for feeding, succeeded by summer vetches and oats, and the same mode of giving the mangold and meal should be continued; and if either crop gets too old for clean feeding let it be cut up and put into cages as before named. The second growth of green crops will succeed and take the place of the earlier ones, and this succession has been fully stated in the first part of this article; and this brings the feeding process down to a period when a few early turnips may be fed off on the land, but not later than the 1st of October upon the strong land to which we are now referring.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The tillage of the land has met with very little interruption during the month of April, for although we have had rain occasionally, yet it has been no impediment to the horse labour on the home farm; because when the land was rather too damp for working kindly, still the rolling of grass ground and such work has been completed in favourable weather, and in time for laying-up the land for a hay crop.

The cultivation of the fallows intended for root crops must now be pushed forward with all speed, especially for seeding with carrots and mangolds, and also the planting of cabbage with autumn-grown plants. The spring-growing plants in the seed beds should now be attended to and narrowly watched, for in case the fly attacks the young plants whilst in the second leaf they often receive serious damage in a short time. In the event of the fly making its appearance the plants should be dusted with lime or dry ashes applied in the morning in order that the ashes may adhere to the leaves of the plants.

The best season upon the majority of soils for sowing mangold is the first week in May. If no manure has been applied previously it may now be done advantageously if the land has been stetched beforehand, so that the yard or town dung may be laid in the furrows and the stetches reversed. This plan effectually buries the dung, and the seed may then be either hand-drilled immediately over the dung, or hand-dibbled; in the latter case it may be done by women under orders to plant not more than three nor less than two seeds at about 9 inches apart. But in the event of artificial manure being applied, it is better to drill the seed on the flat, at about 2 feet apart between the lines, and to apply the manure by the drill at the same time, but care should be taken if guano is to form part of the manure to be drilled, not to exceed 1½ cwt. or 2 cwt. per acre, the latter to be applied only in the case of the guano not being of first quality. When the Peruvian guano is guaranteed to contain from 11 to 12 per cent. of ammonia, it is not right to apply with the seed more than 1½ cwt. per acre, as it is sure to weaken if not destroy the germination of the seed if that quantity is exceeded. We therefore recommend in preference, when 1½ cwt. guano and 3 cwt. of superphosphate has been applied with the drill, in case any more manure is required to produce a full crop, that before the horse-hoeing between the rows takes place, that 1½ cwt. of nitrate of soda per acre should be sown broadcast over the land, and the horse hoe following will effectually bury the manure and add immensely to the immediate growth of the mangold. In case of the crop requiring more assistance, and also in the case of growing roots for show, there is no better way to effect an extra growth than by continued dressings of 1 cwt. of nitrate of soda per acre sown over the land before each hoeing takes place. The same mode of proceeding applies with equal force in the cultivation of the white Belgian carrots, for it is truly astonishing to see the extra growth made both of tops and roots by this crop under such treatment. Even upon strong lands we have grown enormous crops of the white Belgian variety. We have often had them upon poor stony brows throw their roots 8 or 10 inches above the surface when forced with manure, whereas on the sandy or loamy parts of the same field they would grow underground. This is, however, a growth peculiar to the white and yellow Belgian carrots, as the other sorts delight in a deep rich soil, and will not come to perfection unless they can enjoy it.

It is now time to sow the clover and grass seeds in the corn where it has not already been done; for although we advocate the seeds being sown with Lent corn at the time of sowing the corn, yet circumstances sometimes arise to delay this matter, besides which it is a common practice where potatoes have been grown before wheat to seed the wheat with clover in the spring, and in our own practice we have always found the clovers take better in wheat preceded by potatoes than in any other way. Another good preparation for clover is when wheat has been sown after a mangold crop removed; in fact, it matters but little whether the mangold crop is succeeded by wheat or Lent corn, the grasses are nearly sure to succeed after such a course of management. There is, however, another matter connected with the seeding of the clovers of different sorts. Red clover should never be sown if in the previous course it had been grown. We prefer to alternate in this way—red clover and yellow suckling, and in the next course white Dutch and yellow suckling, or otherwise giant saintfoin and suckling, and this suckling is our great essential substitute for the different varieties of the grasses; but we more particularly object to the Italian variety being sown as a mixture with clovers, as its dominating influence is extremely prejudicial.

Hand Labour.—This late season the shepherds and the herdsmen will have some difficulty upon many farms in making the winter food for their stock hold out until other spring food is ready for use. The irrigated meadows are late and poorly cropped with grass this year, the rye also is rather late, and this is just one of those peculiar seasons when mangolds or late Swedes held over for late feeding will be found so valuable. Mangolds, however, under any circumstances or rotation of cropping can be and ought to be provided and stacked ready for use, and if not required until the harvest month so much the better, for the longer it is kept in the store heaps and judiciously managed the more valuable it becomes for stock of all kinds. Where horned ewes are kept the rams will now be turned in with them, and it is none too soon for producing the early lambs for the metropolitan market, as in case the ewes offered to the ram in the early part of May the lambs would come in the early part of October, none too soon for obtaining the best and stoutest lambs for killing at Christmas. The end of the month the rams may be turned in with the Dorset Downs, as these ewes when well kept will offer to the ram very early, and often bring their lambs at the end of November and early part of December. We knew a flock last Christmas which had nearly finished lambing by Christmas day: we allude to the Dorset Downs, because many of these flocks had their origin in the cross with the horned ewes, and it is the result of this cross which makes them valuable.

TURKEYS.

(*Continued from page 316.*)

We now come to the question of Turkeys as profitable stock. Our account of the appetites of growing poults will have prepared our readers for a somewhat unfavourable verdict. Anyone who has watched them gulping down prodigious masses of meal several times a day for months, cannot but come to the conclusion that where the greater part of their provender is bought they must cost far more to rear than their marketable value. The fact, too,

that many of them die after much care, attention, and food have been expended on them affects the balance on the wrong side. The question is quite altered where they can pick up much that otherwise would be wasted—*e.g.*, at farms where they scratch at the barndoor or in the rickyard, or wander over a large area of stubble. Even where little corn is grown, if there are woods and moist grass lands with plenty of succulent vegetable food, they will to some extent cater for themselves. Where, however, they have few of these advantages the cost of their keep is very great; it may be somewhat diminished by giving them large supplies of refuse vegetables from the kitchen garden, which they will greedily devour. We have taught our birds to like prickly comfrey. At first they refused it, but we tore up the leaves and threw them on the ground, and gradually they learned to appreciate them, and now pull at great bunches in our hands, consuming every scrap, and specially rejoicing in the thick juicy stalks. We have been unable exactly to estimate the cost of rearing a Turkey, but *cæteris paribus* we have found our corn bills greatly raised the years we have brought up Turkeys. Still it is satisfactory to have a few for Christmas presents, and, as Mrs. Arbuthnot says, "who ever heard of a dinner without a Turkey?" Poults hatched early in May should weigh by Christmas—cockerels, 20 lbs., and pullets, 12 lbs. to 14 lbs.—*i.e.*, if the parents are of fine good strain. The enormous birds sometimes seen on the table, and for which from two to three guineas are charged by London poulterers, are birds of the previous year. Their flesh is not superior to, if so good as, that of young birds, and except for appearance we can see no advantage in them.

Now as to variety. The Cambridge Turkeys are certainly the largest. They have of late been much improved both in size and beauty by crossing with imported Bronze American birds. Our birds have chiefly been of this improved strain, and we have had reason to be pleased with their looks both in life and on the table. Some years ago an American cock came over and was just before the Birmingham Show, and in spite of his long journey carried all before him there, weighing over 36 lbs. He went into a famous English yard and much improved it; his son next year distanced all competitors in the class for young birds at Birmingham, weighing 28 lbs. This introduction of really fresh blood not only throws vigour and strength into the strain, but lustre of plumage and beauty too, in which these American birds far exceed our own. Hitherto the birds imported have been of domesticated races; we have this year heard of some really wild Americans in Scotland, and should much like to try them.

The Black Norfolk are very handsome, but the original race are small. We have seen some almost black, but far larger birds, probably improved by a Cambridge cross. The finest of the kind we ever saw was one of the fathers of the flock at Patshull, which we have before alluded to.

We admire White Turkeys and should much like to see them carefully bred to finer size. We have a White cock, not two years old, which weighs a good deal over 30 lbs., and has when weighed by the Judge beaten fine Dark birds at shows. White poultry do not look their size by the side of Coloured, and if judged by eye have no chance against them. We have not, however, a White hen a fit mate for him. Other quaint colours we have seen—dun, buff, and chocolate, the latter we believe of Norman origin, but they are not attractive in plumage and are generally undersized. To a beginner we can recommend none more strongly than the Cambridge improved by an American cross, or the Norfolks improved by these. There is much difference in the tempers of Turkey cocks. It is well to look out for the son of an amiable bird. We had such an one for a time, and his progeny were in special request on that account, and we believe follow in their parents' footsteps. As we have before said, Turkeys are apt to fall upon strange birds; care should be taken to watch the letting-out of any valuable newly bought fowls. We have seldom had much harm done by them that ordinary precaution would not obviate.—C.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Tuesday, 22nd ult., the Hon. and Rev. F. G. Dutton (President), the Hon. and Rev. A. Baillie-Hamilton, R. A. Boissier, T. C. Burnell, A. Darby, H. R. Dugmore, the Rev. H. R. Peel, and O. E. Cresswell (Hon. Sec.) being present.

The following members were elected:—Mrs. Troughton, Garthmyl Hall, Montgomeryshire, R.S.O.; P. F. Le Sueur, Grandvale, Jersey (already associates); J. H. Braikenridge, Chew Magna, Bristol; E. P. Gem, Halesowen, Worcestershire; Lady Henry Somerset, The Priory, Reigate; and the following associate member—W. W. Champion, Griffith's Town, Pontypool.

The finances of the Club for the past year were considered, and a balance of £70 in the Club's favour announced. The whole question of the position taken up by certain railway companies towards exhibitors of poultry was again before the Committee, and it was decided to take further legal opinion before any advice should be given publicly to members of the Club. The fresh elections of officers and committeemen for 1879, as already published, were verified.

The Hon. Secretary gave particulars of a number of disputes between exhibitors and committees of shows which have been settled through the intervention of the Club. The disqualification of Mr. James Walker's Dark Dorking pullet at the Crystal Palace Show was again considered, and it was decided as no sort of proof was forthcoming that the bird was bred in 1878 that the disqualification of the Club should follow that of the Judges, and that "Mr. Walker is disqualified from showing at shows held under the Poultry Club rules for one year from the present date, April 22nd, 1879."

The Shrewsbury disqualifications were then considered, and the Secretary was instructed to inform Mr. Lyon that "after due consideration the Committee were absolutely satisfied as to his own honesty, and were prepared to receive his assurances of his man's for this once, but that the responsibility of the further employment of the same man must rest with Mr. Lyon, and that any future disqualification of his birds by Judges must be followed by the disqualification of the Poultry Club." The Secretary was instructed to communicate further with Mr. E. Hewitt, the Judge, before any action should be taken concerning the disqualification of Mr. G. Burnell's Malay.

The following members were announced to have retired from the Club—the Rev. H. Borrow and Joseph Swinson. A number of letters addressed to the Hon. Sec. were then read, among them one from Mr. Edward Hewitt warmly approving the objects of the Club, and it was decided that the next meeting should be held during the Exhibition of the Royal Agricultural Society in London.

VARIETIES.

IT is with extreme regret that we have to record the untimely death of Mr. John Baily, jun., of Mount Street, at the age of 45. We had long known him as an ornithologist of a high order. He was an accomplished linguist too, and had travelled much for the collection of the many rare and interesting breeds of Pigeons, waterfowl, and other birds which have been distributed by the firm over the civilised world.

—— IT is strange how little the season affects the arrival of the migratory birds. Year after year the Swallow arrives with us between the 18th and 22nd of April. Last spring, which was exceptionally warm, we first saw Swallows on the 18th; this year, in spite of the Siberian cold, we saw many on the 24th. The Cuckoo was generally heard in Berkshire and Surrey on Sunday the 20th. The Wryneck arrived several days later, which is unusual, as it almost invariably precedes the Cuckoo by a day or two.

—— THE *American Cultivator* states that the process of liming eggs now so largely practised, and which was for years kept as a "trade secret," is the only practical mode of preserving eggs for market or family use. The method is to slake one cask of lime, one peck of salt, and 1 lb. of magnesia together. Let this mass remain overnight after being slaked, and it will be something of the consistency of putty. Of this make a "pickle" in water sufficiently strong to bear up an egg, and in this pickle keep them in tight casks till wanted. Eggs are usually put down in March or April, and may by this means be kept in very good condition till November, and even into the winter. Indeed, they have been so kept for two years, and then used, though of course they were light and poor in quality.

—— THE adjourned Committee meeting of the British Bee-keepers' Association was held on Wednesday, April the 23rd. Present, Mr. Hunter in the chair; Messrs. Hooker, Cheshire, Glennie, Abbott, and Jackson, and Rev. H. Peel, Hon. Sec. The Treasurer's account showed a balance in hand to 1st of the month of £67 11*s.* 2*d.* The prize schedule was finally arranged and the Judges nominated. It was also determined that the money prizes and medals should be distributed at the close of the Show which will be held at the Royal Horticultural Society's Gardens, South Kensington, in connection with the Society's Flower Show on Tuesday, July 22nd, and the two following days. All entries must be made eight days before the Show opens. This will be strictly enforced.

—— THE winter campaign of the Herts Bee-keepers' Association was brought to a satisfactory termination on Saturday last. Baron Dimsdale, who presided over the gathering, spoke effectively upon the philanthropic objects of the Society, and expressed his own desire that the cottager class might be helped into greater comfort by being instructed in the most profitable methods of bee culture. The Hon. Sec., the Rev. Herbert Peel, felicitously explained the Society's plan of operations, and while pleading for additions to the member roll stated that this was increasing daily; it numbered now 110, and he hoped to see it amount to three or four hundred by the close of the year. The lecture on the relations of bees to flowers was delivered by Mr. Cheshire, who kept the earnest attention of the audience for nearly an hour and a half. He brought out vividly the marvellous structure and adaptation of several flowers, especially primroses, heather blooms,

daisies, cinerarias, and orchids. The good plan of inviting discussion was again followed. The great impetus these lectures have given is inducing other county associations to contemplate following the lead of Hertfordshire.

—— THE AGRICULTURAL EXHIBITION.—A meeting of the Finance Committee of the Mansion House Fund in connection with the holding of a great International Exhibition in London in July next was held on Monday last, the Lord Mayor presiding. The Show promises to be the most interesting ever held under the auspices of the Royal Agricultural Society. Already 24,002 feet of shedding have been applied for by 651 exhibitors, of which area 5688 feet are in respect of machinery in motion, 2220 for seeds and models, and the remaining 16,000 feet for ordinary exhibits. The entries for horses, asses, mules, cattle, sheep, pigs, goats, and various commodities will close on the 1st of May, but certain post entries will be admitted up to the 15th on an additional payment. Over £13,000 are offered in prizes, including £4000 by the Mansion House Committee, and the ground, which is centrally situated at Kilburn, is being rapidly prepared for the Exhibition. Interesting operations connected with some department of agriculture will be shown daily, including butter and cheese-making, and a museum of ancient and modern farm implements. The total expenditure is estimated at £40,000, and the object of the Mansion House fund is to assist the Royal Agricultural Society in defraying a portion of the cost of the site, in offering additional prizes, and generally in affording practical co-operation with a view to making the Exhibition a great success. At the meeting it was reported that the amount received at the Mansion House, or promised, was £8089, of which £2000 had already been voted to the Society in connection with the expenses of the Exhibition, and £4000 had been allotted for prizes. Colonel Kingscote, M.P., said a much larger sum would be required to make the Show a success, and he hoped the tradesmen, who would largely benefit by the influx of visitors, would subscribe to the fund. He added that the Exhibition would be the largest on record, and Londoners especially would be interested and attracted by the Show. After some further conversation it was resolved to bring the matter before the notice of the Stock Exchange, and the Lord Mayor undertook at a convenient time to make a fresh appeal to the public for support.

MODERN BEE MANAGEMENT.—No. 10.

INTRODUCING QUEENS.

To be successful in introducing queens to strange stocks one must consider how bees conduct themselves towards queens. They differ widely from a flock of poultry or sheep, into which a stranger of either sex may be introduced with little fear of not being tolerated. Bees, as a rule, allow only one queen to live in a hive. Cases frequently occur where two queens are found living together in apparent amity for several weeks, but these are probably cases where a young queen has been raised for the purpose of superseding a nearly worn-out mother, the latter being allowed to fill out the measure of her days undisturbed. I had a case in 1877 illustrative of this. I had introduced a newly imported Ligurian queen to a stock, but found a few weeks after an empty royal cell where none had been before. On closer examination I discovered a young queen on one comb and the mother on another. In a few days I found both laying on the same comb. As an experiment I removed the older queen, and introduced her to the queenless portion of a stock divided for the purpose. She laid but sparingly, and I was not greatly surprised to find a royal cell raised here also. In this case, as in the former, the young queen became fertile, and the two continued to live in apparent friendship for about six weeks, when the older was missing. She had evidently either been an old queen palmed off as young, or had some defect known only to the workers.

The case is altogether different when, either from accident, neglect, or design, a strange queen finds herself in a stock that has a queen already. The workers gather round the stranger, apparently intent on her death. If not at once mortally wounded she is enveloped in a ball of excited bees, and kept a close prisoner there for many hours, death usually ending her misery. Even the rightful queen is often also balled by her own bees, as if their allegiance were divided, but most probably for her protection. At certain seasons, however, very little notice is taken of the presence of the stranger. When there are many young bees in the hive, and when honey gathering is going on briskly, an old queen may be removed and a new one allowed to go loose without in most cases causing the least disturbance. The new one may even be allowed to walk in without the old one being removed. Both are tolerated till they chance to meet, when the more active slays her rival.

It is well, however, at whatever season to take every precaution against mishap, and more especially in introducing costly imported queens. The following general directions must be attended to:—

1st, Make sure there is no queen or tenanted royal cell left in the hive. There are several months in the year in which no breeding goes on, and the inexperienced are apt to conclude there is no queen. In such cases, should the stock be strong, it is often difficult, even with the bar-frame hive, to say whether there is or not. A few days' stimulative feeding will generally settle the matter, since it is almost certain to result in egg-laying if there be a fertile queen in the hive. There may, however, be an unfertilised queen present, the smallness of her body making her identification difficult, and no eggs might be found. In such a doubtful case, or where the nuisance of a fertile worker existed, I would never risk a valuable queen. I would remove one less prized from another stock in good normal condition, and introduce the valuable one in her place. The removed queen might then be given to the doubtful stock.

2nd, Make sure that there are young bees in the hive into which a queen is to be introduced. Young bees are the nurses of the colony, and they probably are the chief attendants of the queen. Their youth also renders them more likely to attach themselves to the new queen, since many of them have not had time to form acquaintances with any other. Colonies long queenless should have a comb of hatching brood given them some days before the new queen is introduced.

3rd, Cage the queen to be introduced, if possible, between combs containing brood for at least twenty-four hours. The cage should be a flattened tube of fine wire with a mesh of an eighth of an inch or so, that there may be no hindrance to the bees and queen becoming thoroughly intimate. It should, however, be such that no bee can pass into it, being closed at the ends either by a plug of wood or a wire door. Should the bees incline to be hostile the queen is thus safe from attack, and should a few cells of honey be bruised near the top of the comb while the cage is being pushed down these will supply her with food until the bees incline to feed her; this they usually do at once, though sometimes not for days.

4th, In the meantime place a bottle of feeding syrup as nearly over the cage as possible. This will soon put all in "merry pin," and withdraw the attention of the bees from the *coup d'état* that is being practised upon them. Should the syrup be scented with peppermint it will be all the more likely to jumble their notion of "Who's who?" During a flow of honey the feeding bottle may, however, be safely omitted; instead, the cage may be slightly smeared with their own honey.

5th, At the end of the twenty-four hours gently withdraw the cage, at the same time giving the bees a few drops of the same scented syrup or honey to amuse them. Sometimes the cage will be found covered with still hostile bees clinging to it and endeavouring to reach the queen. In this case leave all for another twenty-four hours. But if the bees conduct themselves quietly withdraw the plug and allow the queen to crawl out within 2 inches or so of the feed hole. Before she reaches it she will be met by some of the bees whose behaviour towards her must be watched. If they treat her gently she may be allowed to find her way into the hive; if otherwise, there is just time to rake her back with a feather and recage her for another day. In either case replace the feeding bottle or give more honey.

6th, In cases of persistent hostility examine the combs lest there be royal cells. Cut all out and proceed as *de novo*.

The above may appear to some to be rather a troublesome business, but in nine cases out of ten all goes well if the proper precautions are taken, and this makes it pleasant. There are cases, though rare, in which a queen has had to be recaged for a week or more before the bees would accept her, and therefore I prefer the method of releasing given above rather than a common plan of having a trap door in the cage open without withdrawing it, and thus losing all chance of recovering the queen should she be abused.

With special reference to the introduction of imported queens the following is the method I specially recommend to beginners. Secure your queen if possible a few weeks before the usual swarming season, say in May. At this time she certainly costs more, but is well worth the money, since she is almost as good as a swarm. Choose your strongest hive and remove its queen with a small swarm, by driving if skeps are used, or in frame hives by taking the comb she is on with all its adhering bees. In the former case place the small swarm on the old stool; in the latter place the comb in a new hive on the old stool, and fill up with spare combs or sheets of foundation. The old stock is now to be located on a new stool, and the new queen caged in it as already directed. Of course the frames remaining in the frame hive should be closed in to fill up the space of the one taken away. All this should be done on a fine day when the bees are flying. In a few hours nearly all the old bees will have left the old hive and joined their queen on the old stool, making a strong swarm. The young bees hatching out every moment take up at once with the only queen they ever knew, and her risk is thus reduced to a minimum. She may be liberated without fear after the usual interval. Two precautions are, however, necessary here. As the removed hive is for the time being greatly reduced, it must be kept warmly covered and its doorway contracted; and as the old outdoor workers are almost all gone there will be a dearth of water for diluting the food of the larvæ, for there is much water needed at this season, and none kept in store. It will prevent any possible injury, then, if when

the queen is caged a feeder be placed on the hive filled either with pure water or very thin syrup. In a few days the stock will be as strong as before, and thus a young fertile queen in May may prove to be worth "a load of hay."—WILLIAM RAITT, *Beecroft, Blairgowrie.*

THE FERTILE WORKER.

A WIDE field lies open for the researches of our young brethren about commencing bee-keeping this year, and who may think that there are no more abstruse points to resolve in bee-keeping, seeing that the great naturalists Dzierzon, Von Berlepsch, Sir John Lubbock, and others have given the honey bee their closest attention; but I have yet failed to come across any decisive theory for the presence of that pest of the apiarian, the fertile worker. The question, Whence come they? seems to me as yet unsolved.

The most generally accepted theory seems to be that of Huber, concurred in by Dzierzon, that the fertile worker is raised in a cell adjoining a queen cell, and received as part of her nourishment some of the royal pabulum, which thereby in some unknown manner partially metamorphosed her, and gives her the power when born in a queenless hive of taking upon herself queenly functions.

I have lately met with another theory propounded by an experienced Swiss bee-keeper, but which I recognise to be nothing very different from that of the Baron von Berlepsch—namely, that when the bees are suddenly called on to produce a queen from eggs or larvæ given them purposely or as in nature, when the queen of a hive that has thrown its first swarm is lost on her wedding trip, they in their anxiety commence feeding, amongst others, larvæ beyond the age at which they can produce a perfect queen, it being accepted that there is a certain time absolutely necessary for the larvæ to receive the royal pabulum before a fully developed and perfect queen can be produced. These late-in-life-fed larvæ naturally emerge from their cells first, with all the instincts of a queen developed, and show the same by proceeding to tear down the true queen cells and kill the inmates.

The population accepts this little queen which will never be fecundated, yet asserts her authority in such a recognised queenly fashion, and is allowed to set about laying eggs from which naught but drones emerge. This half-queen being imperfectly developed is so small as generally to escape detection; but being *de facto* the queen of the hive she attacks and kills any queen offered to the apparently queenless hive; and the bees actuated by the feeling that they are not queenless, although esteemed to be so by the bee-keeper, absolutely refuse to raise true queens from fresh eggs or young larvæ given for that purpose.

To prevent the raising of these half-queens my Swiss authority recommends that five days after brood be given a hive from which to raise a queen, search be made amongst the queen cells, and any found on that day capped should be relentlessly destroyed.

For my own part I favour this latter theory, but with Dzierzon I believe they may and do originate in various other modes than the above-named; and Baron von Berlepsch says, "Every hypothesis, however, yet submitted from any quarter rests chiefly on the assumption that development has by some means been overstimulated for a brief period; and as the result affects the sexual organs more especially, the quantity and quality of the food administered have been looked to as the exciting cause."

I purpose in my next letter upon this subject taking Dzierzon's propositions Nos. 12 and 13 with the Baron von Berlepsch's remarks thereon, and reviewing the same by the light of certain Algerian experiences, and the special results obtained from a colony with fertile worker with which I am at present experimenting.—ARTHUR TODD, *Algeria.*

SUPERS AND COMB FOUNDATION.

IN a recent number of your valuable journal Mr. Pettigrew says he uses grocers' old boxes for supers on his skeps. It is a "penny wise pound foolish" policy to entertain the idea that any kind of box, be it clean or dirty, is good enough as a receptacle for storing honey. A pound of honeycomb is not much in bulk, and its value is 1*s.* or 1*s.* 6*d.* A new and clean case to hold it can be purchased for 1*d.* or 1½*d.* at the most. It is, therefore, false economy on the part of the bee-keeper to attempt to save fractions on the pound of his honey in the expense of a case. In Scotland we have points of beauty in a super of honeycomb. We must have straight regular combs, as if they were cast in a mould. No super has any chance of a prize in any class at our exhibitions unless the combs are built regularly, the honey well sealed, and the case or receptacle clean and neat. The honey is not any better in fine regular comb than it is in crooked combs, neither is it any better in a clean well made and finished case than in any old box. The clean case with regular combs pleases the eye best and shows better forethought and management on the part of the bee-keeper, and will bring from 25 to 50 per cent. per pound more in the market than a grocer's box with a lot of crooked uneven combs.

All over England is a cry at present that there is no market for honey, whereas I believe England is the best market in the world for honey. If English (aye, and Scotch) bee-keepers would discard all grocers' boxes and makeshifts of that kind as receptacles for their honeycomb and adopt clean well-made supers, be they small or large, and see that the combs are built evenly and regularly in them, they would thus please the eye of a discerning public, who would purchase them readily.

In looking at the windows of a confectioner's shop or Italian warehouse in any town one cannot help admiring the neatness and ingenuity displayed in the preparation of the various packages and cases of sweets. Honey, the most delicious sweet in the world, is put into any makeshift box, and may possibly be set as it came off the hive in the same window. But this crooked-combed super of honey catches your eye and destroys the artistic picture you have been drawing. There may be also in the window a piece of honeycomb on a plate with the delicious nectar oozing from every cut cell and wasting its delicate flavour. In straw skeps, too, when inverted, besides showing signs of foul brood often an inch or more of liquid honey may be seen with bees floating in it, suffocated in the fruits of their own industry. Such skeps and unsightly supers can be seen in shop windows in many towns in the kingdom every year. And who is to blame? Simply bee-keepers themselves. They will not progress. They have advocates who teach them to do things in this manner, apparently for no other reason but that their fathers and grandfathers did so. Let every bee-keeper in the kingdom resolve that henceforth whatever honey he may have shall be put before the public in a clean form in small neat packages, cases, or glasses; then we shall see that the demand will exceed the supply, and the cry will soon be, "No honey to sell."

A few years ago I began to keep bees for pleasure. Since then I have discovered that besides being a most fascinating pursuit, bee-keeping in the improved methods is very profitable. I live in a highly cultivated district about two miles from the sea. The honey season is over about the end of July. And as a proof of what bees can do in a good season under the improved system of management I realised last year from nine stocks upwards of 600 lbs. nett weight of pure honeycomb without speck or blemish, and 200 lbs. of extracted honey, besides an increase of thirteen strong colonies and a four-framed nucleus, all left sufficiently provisioned for winter. My largest harvest was 118½ lbs. nett in seventy sections from one hive; other two of my stocks exceeded 100 lbs. each. They have all come through the long arctic winter we have been enjoying (?), and they are now every bright sunny day collecting artificial pollen (peameal) from the paper flowers placed in my garden for them.

Mr. Pettigrew frankly admits that he is ignorant of the way to use comb foundation. He admits also that he has proper instructions from an able and experienced bee-keeper who has practical knowledge of the best mode of using it. Instead of attending to the advice and instructions he has received he suggests plans of his own for using it. I would caution bee-keepers against those plans, for they will certainly lead to failure. Very often when one fails in properly applying any new thing the article itself is condemned, and not one's own mismanagement.

Next to the bar-frame hive comb foundation is the most valuable invention in bee-keeping of modern times. If the price were doubled I would purchase as much, for I know from experience that it would still pay cent. per cent. In supers I only use it in narrow strips. In frames for brood and in two-storey hives for extracting I use the full sheets. If firmly fixed with melted wax on both sides to the top bar, leaving three-eighths of an inch clear at the end and bottom bars, it will not sag or break down. When dug out by the bees every cell in the whole sheet will be perfect and fit to produce a bee. The space left at ends and bottom is absolutely necessary to allow the expansion of the sheet by the heat of the hive. This point ought always to be attended to in both frames and supers, otherwise the comb will not be straight. When putting sheets of foundation in frames keep the arch of the cells uppermost—that is, parallel to the top bar. It will thus bear more weight of bees and there is less danger of sagging. If you make a box or frame a little narrower at the bottom and fit the sheet in it as Mr. Pettigrew proposes, you will have one of the most crooked combs possible. Thus jammed at the ends there is no room for expansion when heated in or on the hive, the consequence is that it sags in the middle and makes bad comb. There are many ways of getting sheets worked into comb so as to have them available for swarms. My bees are at present confined to as many frames as they occupy to economise heat and promote breeding. I have two, three, and four frames of comb taken out of every colony according to its strength, and the spaces at the sides of the combs filled up with boards or dummy frames. As the colonies increase and require more room, in place of their comb I give them frames of foundation at intervals until the hive is filled with comb.

As every cell in the foundation is fit to produce a bee I find they increase faster than by giving them their old combs again. When I obtain or make a swarm I give it four of those combs and four of foundation according to the size of the swarm. In a week or so I put in as many frames of foundation as will fill the hive. I have thus a swarm with a hive full of combs in about the same

time as it would take them to clean out the ends of the straws and put a layer of propolis on one of Mr. Pettigrew's big straw skeps. If a lot of perfect comb is required, it will pay to keep a good stock working out sheets of foundation during the whole season. If a bee-keeper's object is increase of stocks this is a capital plan to get comb for them. By the use of the extractor the amount of honey obtained from a stock of this kind in a good season is incredible to any skepist. Take away and extract the combs at the sides, or those having the most honey in them, and give to your swarm. Insert frames of foundation in their place in the hive. Repeat the operation every few days, or as often as you require combs for swarms, and continue it during the season. Thus one can soon have a large quantity of the most perfect combs possible superior to any natural combs, and increase stocks *ad libitum*.

Another way of keeping a stock working foundation is by putting a storey above or below the other, filling up with sheets, and as they are built out taking them away and filling up with new sheets. If the foundation is properly fixed to the top bar only, a swarm, if slowly and carefully run in and giving top ventilation for a day or two, can be hived into a bar-frame filled with comb foundation alone without any danger of stretching or falling down. A man who keeps bees in straw skeps can receive but partial benefit from comb foundation, which has already proved to be an invaluable acquisition in humane and profitable bee-keeping.—J. S., *Arbroath*.

BAR-FRAME HIVES.

WHAT form of bar frame for hives does Mr. Raitt prefer? I have used Abbott's latest standard with a projection on one side of each end; but I prefer an older form of his frame, with a projection on each side of the projecting pieces, and the side bars mortised in, and no bottom rail. A mortised frame is almost indestructible, while a nailed frame is easily injured. The advantages I find in the closed end bars are that they are easily laid hold of, as they project outside the hive, also the hive body is very simple to make (mine are simply bottomless boxes of inch board). Their disadvantages are that they are sometimes stuck rather fast; and the bottom of the frame being shorter than the top, when one hive is placed over another for doubling they do not fit flush, but the ends of the bars project, and would, I am afraid, catch the rain.

Will Mr. Raitt kindly say what form of roof he uses, and whether it will hold a tier of supers? I see the sides of his hive project 2 inches above the frames, therefore a very shallow cover will answer, but his hives cannot be doubled both on that account and because of the fixed floorboard. I quite agree with Mr. Raitt as to fixed floorboards, but still if simple bottomless boxes could be used one could be used as an upper storey to the stock hive, either with sections or frames hung in it, or containing sections resting on the frames.

Does not Mr. Raitt find the Woodbury size rather small? The almost universal opinion in America, after much more experience in commercial bee-keeping than we have had here, is in favour of the Langstroth frame, long and rather shallow; mine are 17 by 8½ inches. The Woodbury frame with straight top bars is certainly very simple to make. Could it not rest in a rabbet cut in the top of the inch wood? I see the Americans do not use distance tacks. Does Mr. Raitt? The best-looking and cheapest roof I have seen is that sent out with Mr. Fuggle's cheap hives. It is made with five pieces of 9½ inch deal; four of them are cut and nailed together on the bevel, the other is nailed flat on the top. Its only disadvantage is, that although it will cover a complete set of sections it will not come quite down over them.—ALFRED WATKINS.

THE NATURAL AND THE ARTIFICIAL.

SOME time back I promised to give your readers some details as to the time taken to work out sheets of foundation; but the weather has been so inclement and cold, rarely exceeding 60° by day, and averaging often as low as 45° at night, that there has as yet been no bee pasturage, and it has been impossible to get any new comb built or foundation worked out.

During the only spell of warm weather we have had, and which only lasted some three days, I placed a sheet of foundation in a strong hive. In twenty-four hours it was worked out fully to three-quarter depth of the cells, and the following day it appeared to be completely finished. Other sheets that I placed in hives have remained untouched, showing the great lack of in-coming food to stimulate wax-secretion. By-and-by when we do have some heat in the atmosphere I hope to be able to give you some instances of rapid transition from foundation to perfect comb.—ARTHUR TODD, *Algeria*.

OUR LETTER BOX.

SOFT EGGS (*W.*).—The hen is fed too nutritiously. Give up the patent meal. Barleymeal and Indian corn alternately will be very liberal feeding. Give abundance of green food—a grass run supplies the best—and plenty of lime rubbish. The food may be correct for the other hens.

COW UNSATISFACTORY (*Old Subscriber*).—We should not waste any more time over the animal, but should feed her off as you propose.

AMATEUR COW-KEEPING (*T. E.*).—Keeping of cows where there is no arable land but only pasture is somewhat expensive under any circumstances. There is often a large garden where only pasture land is held. In this roots may often—especially cabbage, white carrots, and red mangolds—be grown to some extent and used with hay, and thus supplement the purchased food in the winter and spring. The purchase, however, of vegetable or green fodder as to cost will depend upon the facility of obtaining it. In the event of using roots sparingly when they are dear, the best supplementary foods are dried concentrated grains, palm nut meal, and maize meal. Each of these feeding stuffs are to be purchased at a cheap rate compared with other articles such as oilcake, &c., and at the same time they are the best articles for producing milk both in quantity and quality; and it would be well if these articles were used according to requirements all the year round, even when the cows are tethered upon the grass land; but it must be also remembered that the question of economy will be sure to vary according to the position of the place and the opportunities for obtaining vegetable food or green fodder for rack feeding.

VILLA FARMING (*Rustic*).—You do not mention in what particular you require information relating to a suburban villa farm of twelve acres. We surmise that you refer to practical information for its management. As, however, we do not know of any practical work on the subject in print that we can recommend, we hope in the course of a little time to give an article upon the subject in the Home Farm department of this journal.

BEES WANDERING (*A Constant Reader*).—The bees which you say were wintered in darkness and without food, and which since the beginning of March have, by being well and constantly fed, become so strong that they will not stay at home, are not your own. "They return," you say, "every morning, and go away every night." Your own bees are dead or nearly so, and the good syrup which has been offered to them has been carried away by bees belonging to other people. Bees can be wintered in darkness, but not without food.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. April.	9 A.M. Barometer at 32° and Sea Level	9 A.M. Hygrometer. Dry.	9 A.M. Hygrometer. Wet.	9 A.M. Direction of Wind.	9 A.M. Temp. of Soil at 1 foot.	IN THE DAY. Shade Temperature. Max.	IN THE DAY. Shade Temperature. Min.	IN THE DAY. Radiation Temperature. In sun.	IN THE DAY. Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 23	29.465	47.8	46.6	S.S.E.	42.0	53.4	40.3	69.4	35.7	0.130
Th. 24	29.747	47.2	45.4	E.N.E.	43.2	54.4	43.0	96.3	43.0	—
Fri. 25	30.112	45.7	44.5	S.E.	43.8	57.9	34.5	100.0	30.2	0.080
Sat. 26	29.729	51.8	47.7	W.	44.1	61.7	41.7	114.2	37.2	—
Sun. 27	29.647	49.4	46.6	N.	45.8	60.6	43.1	111.0	36.5	—
Mo. 28	29.935	46.6	44.0	N.	46.2	55.8	39.8	107.7	41.2	—
Tu. 29	30.300	45.8	40.9	N.N.W.	45.8	57.4	35.2	113.9	30.6	0.010
Means	29.848	47.8	45.1		44.4	57.6	39.7	101.8	36.6	0.220

REMARKS.

23rd.—Dull all day with several showers; wet evening.

24th.—Dull in early morning, afterwards fine, with occasional sunshine; starlight night.

25th.—Very foggy till about 10 A.M., then fine and sunny; afternoon and evening dull and showery.

26th.—Fine bright day; shower in afternoon.

27th.—On the whole fine and bright, though there were one or two slight showers.

28th.—First part of morning cloudy; rest of the day fine and bright.

29th.—Fine bright day, but occasionally cloudy in afternoon; dull evening.

Atmospheric pressure higher than last week. Temperature about 6° higher. On the whole a fine week though rather dull, and with a good deal of cold wind.—G. J. SYMONS.

COVENT GARDEN MARKET.—APRIL 30.

A BETTER trade doing lately, Strawberries and Grapes selling freely; forced vegetables remain the same; Cucumbers in good supply at depressed rates.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	2	0	to	6	0	Melons	each	0	0	to	0	0
Apricots	dozen	0	0		0	0	Nectarines	dozen	0	0		0	0
Chestnuts	bushel	12	0		16	0	Oranges	℔ 100	4	0		12	0
Figs	dozen	12	0		18	0	Peaches	dozen	0	0		0	0
Filberts	℔ lb.	0	9		1	0	Pears, kitchen	dozen	0	0		0	0
Cobs	℔ lb.	0	9		1	0	dessert	dozen	0	0		0	0
Grapes, new	℔ lb.	7	0		12	0	Pine Apples	℔ lb.	2	0		4	0
Lemons	℔ 100	4	0		8	0	Walnuts	bushel	0	0		0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	2	0	to	4	0	Mushrooms	pottle	1	6	to	2	0
Asparagus	bundle	3	0		8	0	Mustard & Cress	punnet	0	2		0	0
Beans, Kidney	℔ 100	1	0		1	6	Onions	bushel	2	4		4	0
Beet, Red	dozen	1	0		2	0	pickling	quart	0	4		0	0
Broccoli	bundle	0	9		1	6	Parsley	doz. bunches	2	6		0	0
Brussels Sprouts	½ sieve	0	0		0	0	Parsnips	dozen	0	0		0	0
Cabbage	dozen	1	0		2	0	Peas	quart	3	6		6	0
Carrots	bunch	0	4		0	8	Potatoes, new	℔ lb.	0	6		1	0
Capsicums	℔ 100	1	6		2	0	Potatoes	bushel	3	6		4	6
Cauliflowers	dozen	3	0		6	0	Kidney	bushel	4	0		5	0
Celery	bundle	1	6		2	0	Radishes	doz. bunches	0	0		0	0
Coleworts	doz. bunches	2	0		4	0	Rhubarb	bundle	0	9		0	6
Cucumbers	each	0	4		1	0	Salsafy	bundle	0	9		1	6
Endive	dozen	1	0		2	0	Scorzonera	bundle	1	0		0	0
Fennel	bunch	0	3		0	0	Seakale	basket	2	6		3	0
Garlic	℔ lb.	0	6		0	0	Shallots	℔ lb	0	3		0	0
Herbs	bunch	0	2		0	0	Spinach	bushel	2	6		4	0
Leeks	bunch	0	2		0	4	Turnips	bunch	0	4		0	6

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 8—14, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age. Days.	Clock after Sun. m. s.	Day of Year.
8	TH	Royal Society at 8.30 P.M.	62.6	39.6	51.1	4 22	7 31	11 11	5 16	17	3 39	128
9	F	Quekett Microscopical Club at 8 P.M.	62.6	39.9	51.2	4 20	7 33	morn.	6 22	18	3 43	129
10	S	Royal Botanic Society at 3.45 P.M.	62.4	40.1	51.3	4 18	7 34	0 0	7 38	19	3 46	130
11	SUN	4 SUNDAY AFTER EASTER.	62.4	40.9	51.6	4 17	7 36	0 34	8 59	20	3 48	131
12	M	Royal Geographical Society at 8.30 P.M.	62.9	40.5	51.7	4 15	7 37	0 59	10 18	21	3 50	132
13	TU	Royal Horticultural Society—Fruit and Floral Com-	63.5	38.8	51.1	4 13	7 39	1 17	11 33	☾	3 51	133
14	W	Society of Arts at 8 P.M. [mittees at 11 A.M.	63.2	40.3	51.7	4 12	7 40	1 32	0 a 45	23	3 51	134

From observations taken near London during forty-three years, the average day temperature of the week is 62.8°; and its night temperature 40.0°.

BEGONIAS AS BEDDING PLANTS.

FEW plants have improved more rapidly during recent years than Tuberous Begonias. By their free growth, elegant habit, and chaste and brilliant flowers these plants have forced themselves into popularity, for it cannot be said that their improvement and culture have been encouraged by horticultural societies. This year it is true that prizes are included in more than one schedule for Tuberous Begonias; but this is after the plants have become popular, and they are recognised because they are capable of supporting the societies by rendering the shows additionally attractive, rather than the object of the societies being to encourage the culture of the plants.

The value of these plants for the decoration of conservatories and greenhouses during the summer is admitted; and after the experience of last year it is probable that they will in future be extensively employed in the embellishment of flower gardens. Possibly the dull and showery summer of 1878 was specially favourable to the growth of Begonias in the open air: certain it is that many beds were rendered brilliant by them when adjoining beds of Geraniums were correspondingly dull, owing to the exuberant outgrowth of foliage and the consequent paucity of flowers. These Begonias are equally well adapted for massing in flower beds, for associating with other plants in mixed borders, or for growing on rockeries where the soil is sufficiently deep and rich; indeed in no position do they show to greater advantage than when grown on mounds, or in beds raised somewhat above the general ground level.

No one could have witnessed the large plants covered with brilliant flowers of such fine strong-growing and large-flowering varieties as Monarch, Emperor, and others that were planted on the rockery in Messrs. Veitch's nursery at Chelsea last year, without being impressed with their beauty and suitability for the purpose for which they were employed; and certainly no flower bed in Battersea Park was more attractive than a raised bed planted with several of the best varieties of Begonias in mixture. Mr. Rogers with admirable taste rendered the bed additionally pleasing by dotting amongst the Begonias a few plants of Jacaranda mimosæfolia, the bright green finely cut foliage of which formed an elegant canopy for the brilliant flowers beneath. In the gardens of Sir Trevor Lawrence at Burford Lodge, Dorking, were also some fine beds of Begonias; and thousands of plants were growing freely and flowering profusely in the Stanstead Park Nursery of Messrs. J. Laing and Co., which is famed for this useful class of plants. The position that the plants last referred to occupied, and the nature of the soil in which they were growing, are worthy of note. They were planted on a border fully exposed to the sun, and in soil so heavy as almost to resemble clay. The only assistance the plants had was a surface-dressing of manure applied for the purpose of keeping the roots cool and moist. In this apparently ungenial soil the plants assumed a sturdy and floriferous character, and afforded conclusive evidence that they are neither exceptionally delicate in constitution nor dainty as regards food. They require regular moisture, and evidently do not object to two or three showers a week.

Another garden may yet be noted where these plants have during the past few years been bedded out extensively and with great success. The garden referred to is that of J. S. Law, Esq., South Lodge, Southgate, a gentleman who possesses considerable knowledge of plants generally; and his gardener, Mr. Tonge, has devoted special attention to raising varieties of Begonias that are the best adapted for flower-garden embellishment. Crossing was commenced with two or three varieties that are now considered quite inferior from a florist's point of view. In 1873 Chambersii carminata was crossed with Pearcei. The best of the seedlings were then crossed with boliviensis and Dr. Masters. Mr. Tonge's plants are remarkably dwarf in habit and extremely floriferous, but the flowers are small. He has now introduced such varieties as Kallista, Emperor, Vesuvius, and Monarch with the object of producing larger flowers in combination with the dense close habit of his plants: if he succeeds in this he will be satisfied that he has a strain especially adapted for bedding purposes. The whole of the beds in Mr. Law's garden are annually filled with Begonias; and last year, when so many beds planted with Geraniums were flowerless, the beds in question sparkled with thousands of flowers of rich and varied hues. Indeed the more frequent were the showers the brighter the beds appeared to be; for it is noteworthy that Begonias not only produce flowers freely when showers prevail, but they also retain them even when the rains are of a drenching character.

Considering how fragile the flowers appear to be when produced under glass, and how slenderly they seem to be attached to the plants, their power of resisting heavy rain is at the first glance a little remarkable. On closer examination, however, the circumstance becomes less perplexing. When Begonias are growing in rich soil in the open air the peduncles are much stouter and shorter than when the plants are grown in pots under glass. That fact, with the structure of the flowers, renders them to a peculiar degree rain-resisting. The form of the flower is admirably adapted for throwing off rain, being drooping, and the petals overlapping, any lodgment of wet is effectually prevented, and however wet the flowers are outside they are dry in the interior.

This suggests that varieties having upright flowers, such as Frœbelli, Rosæflora, and others of that type, that are so beautiful when well grown under glass, are not well adapted for outdoor culture. Experience, indeed, has proved that this is so, and also that the yellow-flowered varieties of the Pearcei type do not retain their colour under the alternations of sun and rain. Flowers of this colour were quite washed and scorched at Southgate, while the rose, scarlet, and crimson varieties were fresh and glowing.

Another property possessed by these Begonias may be mentioned—namely, that the plants can be taken up and potted when in full flower without sustaining any injury. It is an established practice of Mr. Tonge to take plants out of the flower beds, pot them, and place them in the

dining-room for a night, replacing them in the beds the next morning apparently none the worse for their removal. I also saw many hundreds of plants in Mr. Laing's nursery that had been removed when in full bloom last September and "laid in by the heels" in light moist soil, when the check they sustained was astonishingly slight, scarcely any flowers dropping from the plants. But although the upright-flowering varieties are not well suited for open-air culture, some of them are admirably adapted for cold frames, and are highly worthy of such protection. Some frames filled with Rosæflora and Queen of the Whites in the Chelsea nursery last year afforded a profusion of flowers which were of great value for cutting, especially the white variety, which is very distinct, pure, and fine.

Some varieties having good and bright flowers are unsuitable for bedding purposes on account of the plants growing "sideways"—that is, all the branches growing in one direction, forming flat, not round, plants. Plants of this character should never be propagated for bedding-out, as the peculiarity is certainly hereditary. Only well-furnished plants—those producing sprays equally on all sides—should be perpetuated; but the "one-sided" plants are well enough adapted for certain positions under glass.

In preparing plants for planting out it is of the greatest importance that they are not unduly forced in their early stages of growth, and especial care must be taken that they do not become rootbound. In this respect they are like Calceolarias—if the roots are allowed to become firmly matted round the pots it is little use planting Begonias in beds or borders, for in that state they will not flourish. Many failures have resulted by allowing the roots to become cramped before the plants were bedded out. Neither should a hot, dry, sunny position be chosen. They will endure heat well enough in the open air, but they must have moisture. Soil that will grow good Cauliflowers will grow good Tuberous Begonias. The best mode of preparing the plants for bedding purposes is to plant them about this time in light rich soil in frames and removing them with plenty of soil adhering to the roots, and planting in the beds in June. If the weather is genial and showery they will sustain no check by removal, but, on the contrary, the soil and situation being right, they will continue to grow rapidly, and speedily commence flowering, remaining in bloom quite as long as Geraniums do. Plants raised from seed sown in January or February flower freely during the current season if they are well cultivated.

The tubers should not remain in the ground during the winter. Some of them will live if so left in favourable situations; so will Potatoes and Dahlias, but it is not advisable to leave them in the ground. These Begonias are not hardy plants, and it is a mistake to treat them as such; even if some of them pass the winter with impunity they do not grow so freely nor flower so early the following year as when they have the more generous treatment of which they are worthy. Mr. Tonge, who grows them by the hundred, winters them in the simplest possible manner by merely placing them in heaps in a frost-proof and not over-dry cellar like so many Potatoes; he starts them into growth in spring in moderately heated houses, and subsequently transfers them to frames as above described.

The present is a good time for purchasing these plants either for pot culture or for bedding purposes, and it will be found true economy to pay a little extra for tubers that have started into growth, as many when purchased in a dormant state often refuse to grow at all.—J. Wright.

MANAGEMENT.—No. 2.

To manage a gang of navvies requires some amount of skill independently of understanding the work to be done, but the thing is simplified very much by the knowledge that the men are influenced a great deal by each other, so that for the time they are very much alike, have the same sort of work to do, and may all be treated in much the same way. In a garden where the men are managed carefully, and where as many as are capable of it are made to take a partial responsibility in some special department, getting their full share of credit when credit is due, and feeling disappointment when failure occurs, the thing is different. The special work and the master together often come to have more influence on the individual men than the men have on each other; their natural temperaments thus become more developed, and are each worthy of special separate study. Of course there are men who never can be trusted to exercise their own judgment, but if you take any gang of labourers you will always find 25 per cent. at least who have a good deal of natural talent which may be used with advantage to both master and man when you can once get at it, and in ninety-nine cases out of a hundred you will find that those of the labouring men who have a deficiency of talent will be content to follow their more clever brethren, although they would not like to submit to a lower payment.

If a workman has, or even thinks he has, a share in the management, he will often do twice as much work as a mere timeist, and he will also be more likely to be trustworthy, such an important thing in gardening matters, where the work of years may be ruined by a careless man in a few seconds. Besides the careless man, gardeners have often to do with someone very much worse—viz., the knowing young man who has finished off his education in the celebrated gardens of my Lord Duke, after having served his apprenticeship in another noted place of which you never heard till you saw him, but now hear of it a little too frequently. There is no telling what this young man will do for you if you do not keep him rather tightly reined; therefore until you have well proved him you must treat him as an exotic of which you do not fully know the use nor the requirements. A young man with a disposition to learn, who has already practised under several good gardeners, and is beginning to have the fact dawn on him that a man's lifetime is far too short to learn thoroughly how to be a gardener, is invaluable; but such young men are scarce and are likely to remain so, for it takes much responsibility and many a failure to bring home to us this sad fact. When once you have proved a man to be trustworthy, trust him; if he is able to bear responsibility give it to him, a little at first, then more and more as fast as he can bear it. There is nothing like responsibility to make men of us.

In a company of labourers, whether there are two or half a dozen, if there is no foreman continually with them one of their number should always be treated as a leading man. The best one for the purpose can be easily picked out by watching the attitude of the men towards each other when they begin a new job and are allowed to use their own judgment as to the way of beginning it.

Labouring men should never require to look about for the master or foreman to find a new job, but should always know of work beforehand suitable for all weathers, and the leading one among them be held responsible. They should never be called away from a job unnecessarily. There are times when this cannot be helped, but the best labourers are poor pedestrians, and shifting them about unnecessarily wastes their time and diminishes their interest in the work.

Too many masters is a great evil. If the head gardener's duties are so great or widely scattered that he cannot attend to the direction of all the labourers, then he must have a competent foreman with whom there must be a perfect understanding as to the management. On the part of the foreman, no less than the master, self-control in the presence of the men must be insisted on. No angry threats are to be indulged in, the men should always be treated civilly yet strictly. Should it, however, be necessary to threaten, the words must not be eaten, but punishment must follow at all costs where a warning rightly given has been wilfully disregarded, and one example will generally suffice for a decade. A strict government is the kindest.—William Taylor.

The Late Mrs. Bréhaut.—All who know (either personally or by his contributions to the Journal) the Rev. T. C. Bréhaut will, I am sure, deeply sympathise with him on the heavy loss he has sustained in the death of his accomplished wife. Her claim to notice in our columns does not merely rest on the fact of her having been the wife of an enthusiastic horticulturist, but on her being one herself. It was to her as much as to her husband that the garden at Richmond House became noted all through the Channel Islands; and her success in hybridising and raising new varieties of Pelargoniums was remarkable. One of these, "Bridal," a pure white, has passed into the hands of Mr. Charles Turner, by whom it will be sent out next season under the name of Jeanne Hugo, the name having been changed to that at the request of Victor Hugo, after his beloved grand-daughter. She was also the raiser of Venus, first-class certificate; and of Amethyst, "the best Pelargonium not in commerce," at the Show of the Pelargonium Society last season. Indeed so great was her zeal in the work of the garden that her last terrible illness (cancer) was brought on in the opinion of many by her con-

tinued hours of labour. I remember Canon Hole once writing of the late Mr. Rivers that he was as stately as some of his own standards. Mrs. Bréhaut's beauty and nobleness of appearance were but feebly represented by any of those pets which she cultivated, and were indications of that pure and unselfish nature, of which perhaps no better proof could be given than when in her last illness, racked with pain and sleeplessness, she prayed, "Send me sleep. Yet, O Lord! not more to me than to any other sleepless sufferer in this town." Thus while we may well mourn for her loss, we may also rejoice that the pursuit we all love claimed the thoughts and time of so bright a character.—D., *Deal.*

CINERARIA CULTURE.

MR. J. LLOYD JONES in his article on the Cineraria, page 284, says, "After sowing the seeds a layer of damp moss may be spread over the surface, so that water is not required until germination has commenced." I think a pane of clear glass placed over the pots or pans is much better than the moss, as it does not interfere with the growth of the seedlings, and can be removed as soon as they appear. In the case of the moss you cannot see the seedlings coming up, and you may have to raise it several times. The Cinerarias are also apt to grow in among the moss, being injured in its removal. Then Mr. Jones says that it is a point of great importance to sprinkle or syringe the young plants overhead occasionally, and if this be neglected they will soon be attacked by green fly. Now I never use the syringe to the Cinerarias when growing, yet I have seldom had them attacked by green fly. I think that syringing makes them damp off; and as the green fly first begins its work on the under side of the leaves, the syringe would be of little use unless the plants were placed so that the water could be applied to the under side of the leaves.

I do not grow so many plants as Mr. Jones, nor yet such large specimens; but they are generally good, and this year they have been exceptionally fine. My mode of culture is as follows:—I make two sowings, the first during the last week of March, and the other at the end of April. The compost is the same as that employed by Mr. Jones. I sow in pots after watering the soil, then cover the seeds with a little soil, and place the pots in a Cucumber house with a pane of glass over each pot until the plants appear, when it is at once removed. The seedlings do not require water until they are well up, and then I give it them from the water pot without the rose. When large enough the seedlings are pricked out into pans, which I think is better than potting them in small pots, in which they often become dry, and that in a great measure renders them liable to attacks of green fly.

After two or three leaves are formed the plants are potted in 4-inch pots, being then placed in a cold frame, shaded from sun, and kept quite cool; when the roots reach the sides of the pots the plants are shifted into 6-inch, and finally into 8-inch pots. In the months of July and August the lights are left off the frames all night, except when there is likely to be rain. In this way the Cinerarias have the benefit of the night's dews, which keep them cool and fresh. The plants are removed from the frames in October into a house where a temperature of 40° to 45° is maintained. Weak liquid manure is given them as they approach to flowering. Treating them as above I have been troubled but very little with green fly.—G. HILTON, *Great Totham.*

A BIT OF GOSSIP.

MAY has commenced with clear days and frosty nights, but there is now some promise of fair weather. Apricots are in full bloom, also Garrya elliptica and Sisyrinchium grandiflorum, and even Christmas Roses are not quite over. Just imagine what these facts mean! Yet seedling crops are growing well. Early Peas, not sown until the second week in March, are outstripping a neighbour's brought on under glass. Lettuces sown the same day bid fair to overtake those sown in heat and lately transplanted. Onions have come strongly and rather thickly, as we never thin them. Parsnips, Carrots, &c., are now ready for hoeing. Potato planting is just going on, and is quite early enough, considering the cold, though the soil is in first-rate condition. We dare not trust French Beans in the ground for another nine or ten days, as if planted earlier they would be crippled for the season. This is the month for bedding-out, but not until June will we venture to place Geraniums, Lobelias, Ageratums, and Verbenas in their allotted beds, and it will be later still before Iresines, Coleuses, and Alternantheras are turned out.

We have just finished the pruning of Roses—Teas, and those of a similar habit, cutting out all damaged wood; and with good weather there will soon be abundant growths of strong shoots. In opposition to what we might suppose would be the case, a number of Rose cuttings inserted in a sunny border last October have not only survived the winter but appear to have rooted well; so also Tuberous Begonias, which were frozen in a frame for weeks, are breaking quite strongly. Lilium auratum bulbs, both established and imported, have stood out the winter under a covering of coal ashes and straw during the most severe weather, and are none the worse for the ordeal.

Our fruit prospects are very promising. Apricots are not thickly set with bloom, still there will be more than an average crop set. Apple trees look well. Pears will probably be a good crop, also Cherries. Plums are few; other kinds of small fruits are showing flowers in profusion. If fine weather continues there is every prospect of the season being a good one, though late.—R. P. BROTHERSTON.

WAITING FOR SUMMER.

HERE, on the borders of South Devon and Dorset, three miles from the sea, vegetation is so late that trees and hedges are only just assuming a green hue. Even the birds seem depressed by the weather and refuse to sing. The thrushes and blackbirds, if there are any left, remain dumb. I qualify this by saying if any are left, because my gardener during the whole of last summer never ceased to shoot and trap these lovely songsters. In vain I pleaded for their lives, and pointed out the good they did and the solace and comfort they were to me. "You like Strawberries, sir," was his reply. "Look there," pointing to the beds where a few of these delicious fruit were half eaten; and so bang, bang went his gun, so that it is a wonder to me if a thrush remains. Nothing is more firmly rooted in the mind of the average gardener than that a bird must do harm. I have pointed to the chaffinch and bullfinch carefully picking off the aphides from the Roses; he points in reply to damaged Gooseberry buds or an Apple tree where a few buds are injured. He never remembers that in the season he allows a large quantity of fruit to lie rotting on the ground, far more indeed than the birds would destroy if left to work their own sweet will at the buds.

Though surrounded by woods I never hear a thrush, and as for nightingales they never come near this county. So I have nothing to do but think of the time when summer will come, and groan over the long winter. Even here in the west we have had six months of winter, and at the end of April there were fewer flowers in bloom than I have known in February.

To begin with, there is not a Rose against the house. Lamarque and Solfaterre used always to bloom before Easter. That early variety of Clematis Miss Bateman used to furnish me with lovely white clusters of flowers; this year it is not yet in flower. The only Irises that have yet bloomed have been I. reticulata and persica. The latter is a most lovely bulbous species; its only fault is that it blooms quite on the ground, so that you have to cut a portion of the bulb to get any stalk. Pansies, such hardy garden varieties as Cliveden Blue and White, are only just beginning to bloom. Hyacinths and Tulips are in full bloom and very fine this year. I cannot help thinking that they are finer than usual and stouter in the stalk. Perhaps the cold weather has caused this.

Of herbaceous plants Myosotis Impératrice Elizabeth and Dielytra spectabilis and a few Primulas and Daisies are all the flowers I have yet had, except the beautiful Megaseas. There is, however, one consolation—the black cloud has one tiny streak of silver in it, which is that the backward season may be good for the fruit trees. The blossom is kept back, and the chance of the setting fruit being killed by spring frosts is not so great as usual. But what will the votaries of bedding-out say to this season? When will they venture to bring out their Geraniums, Verbenas, Ageratums, &c.?

Go through the woods and look at the common Bracken; there it lies brown and sere, and not a sign of life about it. The Birches are just becoming green at the tips, and the Chestnut buds are swelling, but the only other sign of spring that I have seen is the adder's spotted body, and we could well do without that.

What about the dates of the Rose Shows? Will they all have to be altered? and will that once-asked question have to be

repeated—'Are there any Rose shows in November, for I think my Manetti maidens may be in bloom by then?" If this weather goes on the odds are much in favour of Mr. Baker winning the challenge cup. for if Mr. Jowitt's nursery is much the same as to soil and situation as his neighbour Mr. Cranston's a more backward and colder spot does not exist. —WYLD SAVAGE.

NOTES FROM THE UPLANDS, WEST DERBY.

A RAMBLE round the gardens at the Uplands during summer is always agreeable, and affords special pleasure to the lover of Ferns. The Uplands abounds with British Ferns in nearly every nook and corner, the collection being as complete as it is charming, and its formation must have entailed a large amount of labour. There are two houses devoted to the growing of exotic species. The house No. 1 is the larger of the two, and contains some good specimens, the greater number being planted out and allowed to ramble at will, while various seedlings clinging to the rocks give the fernery a semi-wild appearance. In the front of the house is a narrow shelf, on which choice varieties are kept in pots. The temperature of this house during the winter has been on many occasions nearly down to freezing point. Dicksonia antarctica and Cyathea excelsa appear to enjoy this cool temperature, as they are now making vigorous growth; the former throwing up twenty fronds. Although many species thrive in a low temperature others do not. The fronds of the beautiful Davallia polyantha are all killed, but the roots remain alive. It is evident from the condition of the Ferns at this place that many exotic species are kept too warm during winter, instead of being allowed to rest with a low temperature. Having increased warmth in the spring they start into growth with strength and vigour; on the other hand, when enfeebled by drought they either die or produce only weak and small fronds. In this house is a fine variety of Adiantum Capillus-Veneris, nearly as large in the pinnæ as Adiantum farleyense; Ficus repens hangs in festoons from the roof, and adds materially to the beauty of the fernery.

In fernery No. 2, the first plant that commands special notice is a seedling Pteris, from the old P. tremula, but quite distinct from that species. It is a robust grower and very beautiful. Many of the Ferns in this house are in pots; Adiantum concinnum latum with fronds 3 feet long, a fine plant, is in a 12-inch pot. Adiantum decorum is 4 feet through, and a grand mass of Adiantum cardiochlæna, planted out, is 6 or 7 feet through. A fine specimen of Adiantum Flemingii under the name of "Seedling" attracts notice, and without doubt this is the place where this variety originated; it is the best of all the Adiantums for cutting purposes. This house contains many other Ferns too numerous to mention, all healthy and well grown. The remaining houses are principally devoted to growing flowering plants for cutting purposes.

The spring bedding, which has of late years been a great feature at the Uplands, and with which Mr. Woodfield, the gardener, has been very successful, has been cut short this year by the severe winter.

The beautiful Holly hedge (Hodgin's variety) which separates the lawn from some portion of the fruit garden is 23 feet high and 16 feet through. I understand that twenty years ago it was not 3 feet high, thus showing the rapid growth this variety must have made during that time. Red sandstone rock is very near the surface where the hedge is planted.—W. BARDNEY.

PROTECTING FRUIT FROM BIRDS.

MR. PEACH in our Journal recommends the planting of fruit trees in squares or parallelograms, and covering them with nets as a protection from birds. This plan I have practised for a dozen years, and find it very effectual. My plan of supporting the nets, however, seems more convenient. It is this: The stakes were 1¼ inch square, 6 feet 4 inches in length, and are bound at the tops with a tin or iron hoop, from each of which a pin projects about an inch. The crossbars are 6 feet in length and 1¼ inch square, having a flat strip of iron screwed on each end, which projects about 1½ inch, and has a hole punched near the extremity. In setting up the framework, the stakes are driven in, a small block of wood with a hole in the centre being held on the top to protect the pins. The extremities of four crossbars meet on the top of the post, the projecting metal strips lying one on another, being kept in their places by the pin which passes through the several eyes. This framework is soon put up, and is easily removed as the crops ripen in succession. It can be extended by more posts and rails in any direction, and after a dozen years' use mine is still in good condition. Any other dimensions of the posts and rails might be preferred, but I give those that I find to answer perfectly. The height is sufficient for Strawberries, Currants, &c. If vigorous Raspberries are to be protected a few longer posts might be kept for the purpose.—H. T., *Northesk.*

CARPET BEDDING.

As the season for planting the beds approaches inquiries for effective designs increase. The one submitted represents a remarkably chaste bed that was much admired in Victoria Park last summer. The dense emerald carpet of Mentha which formed the groundwork of the bed displayed with much clearness the radiating lines of Golden Feather which formed the margins of the figures. As the period is at hand when Mentha should be planted, it may be well to state that it should be planted in a great number of small tufts rather than in a fewer number of larger clumps. Three or four sprays

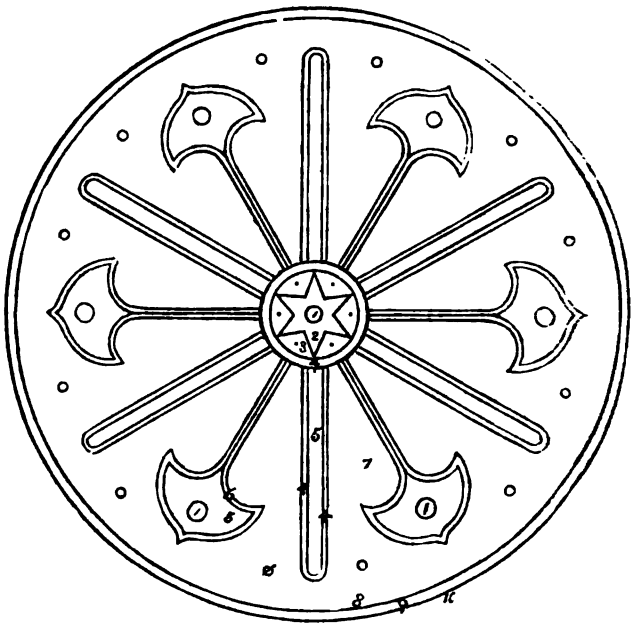


Fig. 49.

1. Pachyphyton bracteosum.
2. Alternanthera paronychioides major.
3. Alternanthera versicolor grandis.
4. Echeveria secunda glauca.
5. Alternanthera amœna.
6. Golden Pyrethrum.
7. Mentha.
8. Alternanthera magnifica.
9. Mesembryanthemum c. variegatum
10. Sempervivum montanum.

planted together at intervals of about 2 inches will form a better carpet than if close tufts 2 or 3 inches in diameter are planted at wider intervals. When planted in close tufts the centres are apt to decay, but decay seldom ensues when the sprays are inserted so that they may touch but not crowd each other. It should be remembered, too, that this Mentha should never be "cut into form." If it grows irregularly, as it sometimes will do, rising into lumps which assume a yellow hue, it must be thinned by "plucking," which is effected in precisely the same manner as the feathers are plucked from a bird. Sufficient of the mass must be pulled out in order that the portion remaining can be beaten quite flat to the ground. By this mode of treatment a smooth green carpet is maintained; whereas if left to grow at will some portions, as before observed, will turn yellow, while if the plant is cut it will turn brown. Several failures occurred last year with this plant because the mode of dressing referred to was not adopted, or because the beds were not watered abundantly during dry weather. Golden Feather as employed in the bed (fig. 49) must be very small when planted; in fact, the great secret of employing this plant successfully in carpet beds is to have the plants as small as possible when they are inserted in the beds.

MARÉCHAL NIEL ROSE.—I send a few blooms from a Maréchal Niel Rose, and should be glad to know if they are

a fair sample of that beautiful Rose. It was only planted last spring, after reading the accounts by "M. M." and others in your Journal, and has about 180 blooms and buds on it, which we have been cutting from the last three weeks. It is planted outside, and brought in like a Vine and trained to the roof, and looking up at it the blooms show to perfection and are a treat at this time of the year.—ELLEN L. MACALISTER.

[The blooms are very good and particularly rich in colour.—EDS.]

WATERING.

THERE are few practical matters connected with everyday gardening of so much importance as watering plants under artificial treatment. Close attention to this will often compensate for many other deficiencies, but when watering is neglected other points of practice are of little value. The man who can be trusted to water judiciously under all circumstances is more useful than he who has all the gardening theories at his fingers' ends. There is not so much harm done by allowing plants to become a little dry occasionally, as there is in not giving sufficient water when it is supplied. Certainly to allow the soil to become so dry as to cause the death of a single root should be avoided, but partial watering—keeping the surface wet and the bottom dry—is certain to result in severe injury.

There is no excuse for not giving plants sufficient water when it is required, and yet thousands are injured and many killed by imperfect watering. What constitutes thorough watering anyone with a little common sense will soon discover. For instance, take a 10-inch pot containing a plant, and with the soil 1½ inch from the rim. If this becomes dry it could never be thoroughly watered by duly filling up the surface to the depth of half an inch with water; but fill it to the rim, and the plant stands a good chance of receiving sufficient. This applies to all sizes of pots.

Stated times for watering are also to be avoided. Going over the plants, say the first thing in the morning, and not looking over them again until the afternoon or the following morning, is not a good system. But probably this stated time of watering is not so much adhered to with small pot plants as it is in the case of Pines both in pots and planted out, Vine and Peach borders under glass, Melon and Cucumber beds. We have known many who were entirely guided in watering their Pine Apple plants by dates—so much time must elapse from one watering to another, but we water ours when they are dry.

In writing of Vines it is often recommended to give them one watering when they are started into growth, one after the fruit is formed, and a third when it is commencing to colour. It is frequently admitted that Vines do not have sufficient water at the roots, and where this mode of watering is carried on that must certainly be the case. We have thoroughly saturated many Vine borders once a fortnight during April, May, June, and July, but we never could say they had too much water. But here again we must dispense with all stated times and be guided by the construction of the border and the prevailing weather, for in bright weather Vine borders require much more water than when it has long continued dull. The same remarks apply to Peaches in borders and to all plants under artificial treatment. The best Melon grower we are acquainted with keeps his plants constantly saturated from the day they are planted until the last fruit is cut.

But the worst form of watering has yet to be considered. Withholding water altogether during the winter from many kinds of plants in pots and Vine and Peach borders inside, is, I am convinced, the worst practice that could ever be conceived. It is well known that tender young roots, always of so much use to plants, will soon die if allowed to become dry, and this is what thousands of them must do every winter under the drying-off process. When the soil is kept moist, although there may not be a leaf on the tree, it is surprising how the smallest roots retain their freshness during the winter, and there can be no doubt that to keep everything moist at the root during the winter is the right way to retain their health and vigour.

Strawberries in pots are often nearly killed by being stored up dry from autumn until spring. An instance of what Strawberries will do after being snowed and frozen up was given in the Journal a week or two ago. Some of those which have done best with us were dug out of the snow to be placed in the forcing pit, and in future we shall never think of sheltering them in any way before they are wanted for forcing. Mildew is unknown with us on any variety, and we attribute its absence entirely to keeping the plants constantly moist at the roots.

Complaints are sometimes heard of Maréchal Niel Rose plants going off suddenly. From the luxuriant way in which this splendid Rose grows by treating its roots on the constantly moist system, I should say the cause of its dying off is simply through depriving it of water under the impression of resting it.—A KITCHEN GARDENER.

RASPBERRIES TRAINED ON WIRE TRELLISES—FUMIGATING.

OUR Raspberries are trained on wire trellises (galvanised), and we never had a single cane die. The canes are always tied to the wire with raffia, which lasts a season thoroughly. It is put once round the wire first, and then the canes are tied; that may account in some degree for their safety.

I have tried various ways, and used various materials for fumigating, but find none so good as Appleby's registered fumigator. My plan is to place the fire and paper, or whatever is used, in the pan, and then cover it well over with wet moss, closing the lid of the pan, and all will be right. I close the house and leave it until it is empty again, as there is no danger of the mass flaring or getting too hot. I have used flower pots, but when they become hot they often break, and then the tobacco bursts into a flame, which does mischief. Any effectual material will do, as no one need stay in the house after putting on the moss and shutting the pan.—J. WILLIAMS, *Horsington Manor, Wincanton.*

HAWFINCHES AND THE BIRD PEST.

I AM very much obliged to Mr. Gardiner for his remarks upon the hawfinch or grosbeak, and I believe it is most unusual to see so large a number as forty or fifty together. Two have been in my garden this winter, and I heard of one other in a neighbour's; a fourth was also shot near Devizes. This bird does not, I believe, breed in England, visiting this country only occasionally in severe winters, and being nowhere very numerous. That excellent ornithologist and keen observer Gilbert White says in one of his letters, "Three grosbeaks appeared some three years ago in my fields in the winter, one of which I shot. Since then, now and then, one is occasionally seen in the same dead season." A note to this is added—"Mr. B. shot a cock grosbeak which he had observed to haunt his garden for more than a fortnight. I began to accuse this bird of making sad havoc among the buds of the Cherries, Gooseberries, and wall fruit of all the neighbouring orchards. Upon opening its crop or craw no buds were to be seen, but a mass of kernels of the stones of fruits." (This could not have been in the winter time surely!—W. R.) "Mr. B. observed that this bird frequented the spots where Plum trees grow, and that he had seen it with something hard in its mouth, which it broke with difficulty; these were the stones of Damsons. The Latin name signifies berry-breaker, because with its large horny beak it cracks and breaks the shells of stone fruits for the sake of the seed or kernel. Birds of this sort are rarely seen in England, and only in winter." I have only seen the hawfinch or grosbeak in winter.

I am truly glad that the subject of the bird pest has been well taken up. It is much to have got a leader in a daily newspaper on our side, so many stupid sentimental platitudes always harping on the destruction of birds in France having for years appeared in periodicals. I should like the subject to be followed by getting some alteration in the bird-preserving Act. All I want is reason to rule; not, either on the one side sentiment, or on the other prejudice. I liked very much the term used in the *Journal of Horticulture* the other day, page 311, "The cultivation of fruit as an auxiliary food supply;" but it should not be, as now, a food supply for birds, but for human beings. How many more thousand families in England would be in better circumstances if they could add to their income by the sale of home-grown fruit. We should not want Apples from America if Apples were grown in England in places now yielding little or no profit; but until the birds are diminished poor people cannot grow fruit with profit.—WILTSHIRE RECTOR.

EDGING TILES *versus* BOX AND OTHER EDGING.—However admissible tile edgings may be in villa and suburban gardens, it is beyond doubt that they are much out of place in any of our grand old-fashioned country gardens, and not fit to be compared with either Box, Thrift, Gentian, London Pride, or any of the old and still popular edging plants. I have

not had the pleasure of seeing Axwell since the cement walks and tile edgings were laid down, but I well remember it with its grand grass walks in the kitchen garden, which when nicely kept (as they used to be) were quite a feature in the garden and were worth looking at, to say nothing of the pleasure of walking on the soft velvety turf. When Box or Thrift edgings are kept clipped every year they do not for many years get out of order, and always look much better than such incongruities as tile edgings are. We clip our Thrift edgings every spring; stretch a line along the centre of the edge then with a pair of edging shears run along each side, taking care to preserve a good wedge-shaped edging by keeping the shears well slanted.—PETER FERGUSON.

MANCHESTER SPRING SHOW.

THE Botanical Society of Manchester held their Show of spring flowers in the Town Hall on the 29th ult. Considering the hard winter which we have experienced, followed by a backward spring, it was surprising to see the fine collections of spring-flowering plants, which were all in excellent health, and fresh and clean as spring flowers usually are. Messrs. G. Paul & Son, Cheshunt, staged a beautiful group of Roses in pots, splendid alike in blooms and foliage, and for which a first-class cultural certificate was awarded. The Society's gold medal was awarded to S. Barlow, Esq., of Stoke Hill House, Manchester, for a general collection of foliage and flowering plants, which filled a stage the whole available breadth of the Hall. A particular feature in this fine arrangement was the hybrid Rhododendrons, most of which, we are informed, were raised by Mr. J. Davis of Ormskirk. The Society's silver medal was awarded to Mr. Hardy, Timperley, for a very fine collection of Amaryllises. First-class certificates were granted to Messrs. Standish & Co., Ascot, for Rhododendrons Snowflake, Bacchus, and Mrs. Bateman. Mr. Broome was awarded first-class cultural certificates for Odontoglossum vexillarium, Dendrobium Wardianum and nobile. A fine specimen of D. Devonianum, shown by Mr. Leech, was also granted a cultural certificate.

NATIONAL AURICULA SOCIETY'S SHOW (NORTHERN SECTION).

The Show, which was held in connection with the above, was a very successful one, the plants being excellent both in foliage and flower, and were generally considered above the average of other years. The premier Auricula in the Show was George Lightbody, exhibited by the Rev. Fred Tymons, Co. Dublin, Ireland, remarkably fine in every point. The following were the awards:—

In Class A, for six Auriculas, Mr. B. Simonite of Sheffield was first with Blackbird, Talisman, John Waterston, F. Simonite, Lancashire Hero, and George Lightbody with splendid glossy foliage and large pips. Mr. Woodhead of Halifax was awarded the second prize for George Lightbody, Garibaldi, Ne Plus Ultra, Blackbird, Metropolitan, and Imperator, which was considered the finest green-edged variety in the Show. Mr. H. Wilson of Halifax was third with Champion, Ringleader, Lancashire Hero, George Lightbody, Prince of Greens, and Charles Perry. The fourth prize went to Mr. J. Booth of Failsworth near Manchester; the fifth Mr. T. Mellor of Ashton-under-Lyne; and the sixth Mr. S. Barlow, Manchester, for four varieties.

In Class B the first prize went to Mr. Mellor for four very good plants of Traill's Anna, Smiling Beauty, and Queen Victoria. The second to Mr. B. Simonite, the third to Mr. Woodhead, the fourth to Mr. Pohlman of Halifax, the fifth to Mr. J. Sharp of Perry Barr, the sixth to Mr. Brockbank of Didsbury.

In Class C, for a pair, Mr. J. Booth was first, Mr. B. Simonite second, Mr. Shaw of Bury third, Mr. H. Wilson fourth, Miss Stuart of York fifth, Mr. Barlow sixth.

In Class D, for pairs, Mr. J. Beswick of Middleton near Manchester was first, Mr. Brockbank second, Mr. Shaw third, Mr. W. Bolton of Warrington fourth.

In Class E, for a single green-edged variety, the premier prize went to Mr. B. Simonite. Mr. Woodhead was first; Mr. Gorton, Manchester, second; Mr. T. Mellor third, Mr. S. Barlow fourth, Mr. Mellor fifth, Mr. B. Simonite sixth.

In Class F, for a single grey-edged variety, the premium went to Mr. B. Simonite, also the first, third, and fifth prizes; the second went to Mr. Spittle of Birmingham, the fourth and sixth to Mr. Cater of Birkenhead, the seventh to Mr. Mellor.

In Class G, for a single white-edged, the premium and the sixth prize were awarded to Mr. B. Simonite, the first and fourth prizes to Mr. J. Booth, the second to Mr. T. Mellor, the third to Mr. Gorton, the fifth to Mr. W. Bolton, the seventh to Miss Stewart of York.

In Class H, for selfs, the premium went to Mr. T. Mellor, who was also second; Mr. J. Beswick was first, Mr. Henry Wilson second, Miss Stewart fourth and sixth, Mr. S. Barlow seventh.

In Class I, for four dissimilar Alpines, Mr. J. Booth was awarded first prize, Mr. S. Barlow second, Mr. Brockbank third, Mr. Gorton fourth.

In Class K, for single plants, yellow centres, the premium went to Mr. J. Beswick; the first prize to Mr. J. Booth; the second, third, and fourth to Mr. S. Barlow.

In Class L, for single plants with white centres, Mr. J. Booth was awarded the premium and the fourth prize, Miss Stewart first and second, Mr. Mellor third.

In Class M, for three dissimilar Polyanthuses, Mr. J. Beswick was first, Mr. Brookbank second, Mr. Brownhill third, Mr. Barlow fourth.

In Class N, for single Polyanthus, the premium went to Mr. J. Beswick, also the first, third, and seventh prizes; the second and fourth to Mr. Brownhill, the fifth to Mr. S. Barlow, the sixth to Mr. Bolton of Warrington.

In Class O, for twelve dissimilar Fancy Auriculas, Mr. Barlow was first, Mr. Brownhill second, and Mr. W. Bolton third.

In Class P, for twelve Fancy Polyanthuses, Mr. Barlow was again first, and Mr. Brookbank second.

In Class Q, for twelve double and single Primroses, Mr. S. Barlow was first, Mr. Brockbank was second.

For seedling Polyanthuses the first prize went to Mr. Bolton, the second and third to Mr. S. Barlow; and a first-class certificate was awarded to Mr. Brockbank for a fine new seedling Polyanthus named John o'Gaunt.

The Show was admirably arranged, and was attended by crowds of visitors.—E.

VALE ROYAL.

LAST autumn I resolved to spend a day at the south side of this county (Cheshire), intending to see Vale Royal, Oulton Park, Delamere Forest, and the old tumble-down town of Northwich. Vale Royal Abbey was founded in 1277 under rather curious circumstances. Prince Edward, the eldest son of Henry III., whilst returning in a ship from the wars of the Crusaders was overtaken by a terrific storm. He vowed to the Virgin Mary that if she would deliver him and allow him to land safely on the English shores he would build a monastery for a hundred monks. It was in fulfilment of the vow made then that Edward, in the first instance, erected an abbey at Darnhall, but subsequently he removed the monks to Vale Royal. This account is borne out by an inscription in one of the rooms of the hall. "King Edward, in fulfilment of a vowe to the B. V. Mary for preservinge him from shipwreck, laide August ye 2nd, 1277, the first stone of this Abbeye which he caused to be named Vaile Roiale." Another: "Quene Elleanor laide two stones of this Abbeye of Vaile Roiale, one for herselfe and one for her sonne Alphonse, August ye 12th, 1277, in the presence of Kinge Edwarde and his nobles." Other inscriptions tell us that "Kinge Henry VII. and his Queene, and the Kinge's mother, visited Vaile Roiale Abbaye and were all hospitably entertayned here July ye 27th, 1495." "King James was royally received by the Ladye Mary Cholmondeley at Vale Royal, August 1st, 1617, and held his court here for four days, during which time he slept in this chamber."

The abbey has undergone many and successive alterations and improvements, which have removed in a great degree all its monastic gloom. Though large enough for a hundred monks it has now on three sides the aspect of a modern English mansion. Remote traces of the original abbey are here and there noticeable. The house from the front lacks elevation, and the front door is made of massive oak heavily nailed, and is one of very ancient date. The place is now in the possession of Lord Delamere, and its gardens are managed by Mr. Robert Milne.

The flower garden adjoins the south side of the abbey, and is well seen from many of the principal rooms. Each of the beds and borders was well filled, and was complete in itself, a model of taste and high finish. The garden being large and the borders capacious there is ample space for a variety of designs, and Mr. Milne has produced a grand and pleasing effect by the arrangements of plants and colours in his ribboning, panelling, and carpet patterns. The quantity of plants used in so large a garden must have been enormous. I was told that 12,000 Echeverias and 12,000 Alternantheras were planted. Golden Feverfew and blue Lobelias were probably four times more numerous. Ageratums and Coleuses were largely employed. Geraniums, indispensable for effect in large gardens, are abounding in Vale Royal gardens; the sorts chiefly are Vesuvius, Fire King, Waltham Seedling, Christine, Flower of Spring, and Beaton's Nosegay. Some standard Geraniums of Beaton's Nosegay and Christine, about 3 feet high with bushy heads, added to the pleasing effect. On leaving the flower garden we passed through another door at the other corner of the house which leads to a large square, three sides of which are bounded by the forcing houses; and here we have glass structures enough for the ambition of most

gardeners. We had evidence in every house that they were all needed and well used for the production of fruit, flowers, and plants for conservatory and table decoration. We admired the energy and "go" of Mr. Milne on witnessing the preparations he was making for the coming season. Every house seemed to be utilised at all seasons for the production of something required by the family.

The first house we entered was 66 feet long, full of Ferns and Palms. The second, a vinery containing a good crop of West's St. Peter's and Lady Downe's Grapes. The next is a Rose house in which two varieties are chiefly grown—Maréchal Niel and Céline Forestier. The next is a vinery of Black Hamburghs. The fifth is a Fig house used for various other purposes. The Melon house was full then of plants of Eucharis, Ferns, and Calanthes. The next was for stove plants, and full of Vincas, Orchids, Clerodendrons, and Ferns. Another house, 50 feet long, was filled with Adiantums (Maidenhair Ferns) grown for mixing with cut flowers in winter. Another house was filled with Poinsettias, Primulas, and Mignonette. Mr. Milne grows his Mignonette in single large plants in pyramidal form, kept in shape by pinching for winter use. The next (tenth) house we passed through had yielded a crop of Peaches, Nectarines, and Plums. The house adjoining this is a late vinery containing Vines of Muscat of Alexandria, Alicante, Lady Downe's, and Gros Colman, all bearing very fine fruit; both bunches and berries were unusually fine. I asked Mr. Milne why he grew so much of Gros Colman. He said it was grown for its grand appearance, and was generally placed on the centre of the table out of reach, and higher-flavoured Grapes were placed where they could be more easily taken. The roots of the Vines in this house were all inside in a border 5 feet wide made of rather light and porous materials, but Mr. Milne believes in generous surface feeding—using soot and liquid manure plentifully. The Grapes were well grown. The next house was filled with Lady Downe's and Alicante Vines bearing a splendid crop of fruit. Another house had Peaches on the back wall, and over the border (inside) in front stood pot plants of Celosia and Geraniums for winter flowering. I have a faint recollection of passing through an early vinery at this end of the range, but I forget what was in it. Outside I saw about six hundred pots of Strawberries in excellent condition for forcing. On my making a remark about their size and strength Mr. Milne said that he laid the runners at first in the fruiting pots, and that this was an advantage to the plants and a saving of labour as well.

On arrival at Vale Royal I told Mr. Milne that probably I should never be in that part of Cheshire again, and would much like to see Oulton Park and Delamere Forest. He kindly drove me over, a distance of four miles, to Oulton. On arriving there we found that Mr. Muir, the gardener, was on the point of leaving home to fulfil an engagement. However, we made a hasty run through the gardens, went past the mansion to see the pinetum planted by Mr. Wills, and I looked with considerable interest at the little cottage in which Mr. Robert Errington's facile pen flung off so many well-written articles on gardening about thirty years ago. To gratify me Mr. Milne returned by a circuitous route through parts of Delamere Forest, which is very different from what I had fancied. Hundreds if not thousands of acres of good land, pretty level, are partially covered with Heather and Scotch Firs. The whole forest should be cleared off and the land brought into cultivation. I hope that this large tract of country will soon be cleared of Heather and covered with golden grain grown for the use and benefit of man. For almost all I saw and enjoyed that day I am largely indebted to the kindness of Mr. Milne. —A. PETTIGREW, *Sale.*

NOTES AND GLEANINGS.

IN MESSRS. VEITCH'S NURSERY, CHELSEA, many attractive plants are flowering, several very good varieties of Clematis being especially noteworthy. C. Lady Londesborough, C. Miss Bateman, and C. Albert Victor are fine, and the rich bright purple flowers of C. Sir Garnet Wolseley are magnificent. Some varieties of Azalea mollis are highly meritorious, particularly Comte de Gomer with dense heads of salmon pink flowers. Anthurium Schertzerianum is now in perfection in a house where a long shelf is devoted to this showy plant. Several are specimens of remarkable size, one being 3 or 4 feet in diameter, and is bearing about fifty very large and brightly coloured spathes. The new Erythrina marmorata is very distinct with good foliage marbled with white.

—— THAT beautiful Orchid ODONTOGLOSSUM VEXILLARIUM is now in perfection at Mr. Bull's Nursery, Chelsea. A number of plants are so arranged as to form a bank of extremely fine flowers, of which there are about three hundred fully open and many more to come. O. vexillarium roseum is particularly good, its bright-coloured flowers contrasting well with the lighter forms. Masdevallia Shuttleworthii is also flowering: this we are informed is the only plant in the country. The two lower sepals are finely and thickly mottled with purple, terminating in reflexed tails about 2½ inches long; the upper sepal is veined and slightly spotted, the tail being horizontal and the same length as the others. Amongst many other handsome Orchids we noticed Dendrobium sulcatum, D. Cambridgeanum, and D. Farmeri, Odontoglossum cirrhosum, O. Andersonianum, O. crispum, and O. Hallii, Cymbidium Lowianum and C. eburneum, all flowering well.

—— WE have received a number of blooms of ALPINE AURICULAS from Messrs. Carter & Co., which in size, form, and colour are very beautiful. There are many of them double and semi-double flowers, and we are told that these have been raised from Messrs. Carter's "own choice strain."

—— "W. W." will be much obliged if any of our readers can give him a receipt for a COLOURED LIMEWASH that will not rub off. He wishes to have pale blue, stone colour, or faint pink. He has a very nice coloured wash on the walls now, but it rubs off if touched by anybody's dress or coat, which is disagreeable.

—— "A. M. B." recommends to "WYLD SAVAGE" the following trio of USEFUL HERBACEOUS PLANTS:—Meadow Cranesbill (Geranium pratense?). Flower medium-size, salver-shaped, colour bluish mauve; blooming from early summer till latest autumn if seed pods are removed. A very old-fashioned plant. Leaves handsome and effective for dessert decoration. Pentstemons, glowing when well grown in clumps or masses; graceful and valuable for cutting, and contrasting admirably with the delicate white Japanese Anemone, which completes the trio of useful plants.

—— THE LILY TRADE OF JAPAN, says the *Californian Horticulturist*, is growing to be something of great importance. and the Lilies usually arrive in perfect condition. This is owing to the method of packing. Instead of using sand, or sawdust, or dry moss, the bulbs are 'puddled,' each separately in a thick clay mud, until each one is coated a quarter of an inch thick. This paper is in most cases then wrapped around to keep the mud from cracking off. These Lily mud balls are then packed in a box and some light material sifted in between. This is a hint for anyone who wishes to send a few bulbs to a friend east, or in Europe, as well as to the professional shippers.

—— OUR correspondent "J. B. S. C." writes to us as follows on the BULLFINCH:—"So many hard things have been written lately concerning a bird I have always admired on account of its appearance, plaintive if simple song, and affectionate habits in confinement, that I wish to urge in its behalf that it is undeniably a great destroyer of insects. Probably it frequently opens buds in pursuit of these, and that is where it makes a mistake. In some countries it is already very scarce, and I shall be sorry to hear it was indiscriminately hunted down throughout Britain."

—— COLD and ungenial as it has recently been in England, it is equally or more so in the south of France. Mr. Peach, writing to us from Cannes, states that not only has the rain been falling in torrents accompanied with keen easterly winds and thunder, but on Saturday last, the 2nd inst., the ground was covered with snow. The same day in England was a brilliant one, but with a sharp north-easterly wind blowing, and vegetation remains in almost a standstill state.

—— MESSRS. CASSELL, PETTER, & GALPIN have sent their packet of monthlies. The "FAMILIAR GARDEN FLOWERS," edited by Mr. Shirley Hibberd, contains the Yellow Martagon Lily and the Sweet Pea, both well illustrated and happily described. The "FAMILIAR WILD FLOWERS," illustrated this month by Mr. Hulme, are the Greater Willow Herb and the Honeysuckle.

—— ALL the FRANCISCEAS are surpassed by F. violacea grandiflora; the flowers are about 3 inches in diameter, and of a beautiful deep violet-blue colour. It grows and flowers freely in a stove temperature.

—— ONE of our most beautiful stove climbers, PETREA VOLUBILIS, is now flowering freely in the Palm House at Kew.

This handsome species, the first known of the genus, was introduced towards the end of the eighteenth century, and first flowered in this country at Mr. Woodford's nursery, Vauxhall, in 1802. Houston discovered the plant at Vera Cruz, and Jacquin also found it in Martinique "climbing to the tops of trees 20 feet high." The flowers are of a very delicate pale purple tint, and they are borne on long pendant racemes. For its successful cultivation a rich soil is required and a moderately high temperature.

—— THE prices paid in the reign of Charles II. for some trees in PLANTING AN ORCHARD were as follows: An Apricock tree, twenty pence; an Orange tree, eightpence; two Royal Windsor Pear trees, twenty pence; two Kentish Pippins, twenty-eight pence; two Flanders Cherries, thirty pence; twenty-six roots of Provence Roses, sixty-six pence; eight young Apple trees, seven shillings; a Mulberry tree, four shillings; a Peach tree, half-a-crown; a Medlar tree, one shilling; and two dozen of Tulips, three shillings.—(*Roberts's Social History of the Southern Counties.*)

—— A STOKE-ON-TRENT correspondent states that nearly twelve months since he took two leaves off a tall plant of FICUS ELASTICA, and inserted the stalks as split off into 4-inch pots. Both leaves are still fresh and green, and the pots are nearly filled with roots. He has been looking for a fine young plant on each pot, and asks if any of our readers can tell him if ever he will be gratified in that respect.

—— THE *Scientific American* alludes as follows to the LOFTIEST TREES IN THE WORLD:—The tallest accurately measured Sequoia (Wellingtonia) standing in the Calaveras Grove, California, measures 325 feet, and there is no positive evidence that any trees of this genus ever exceeded that height. Of late years explorations in Gippsland, Victoria, have brought to light some marvellous specimens of Eucalyptus, and the State Surveyor of Forests measured a fallen tree on the banks of the Watts River, and found it to be 435 feet from the roots to the top of the trunk. The crest of this tree was broken off, but the trunk at the fracture was 9 feet in circumference, and the height of the tree when growing was estimated to have been more than 500 feet. This tree, however, was dead, though there is no doubt that it was far loftier than the tallest Sequoia. Near Fernshaw, in the Daudenong district, Victoria, there has recently been discovered a specimen of the Almond-leaf Gum (Eucalyptus amygdalina) measuring 380 feet from the ground to the first branch, and 450 feet to the topmost twig. This tree would overtop the tallest living Sequoia by 125 feet. Its girth is 80 feet, which is less than that of many Sequoias, but as far as height is concerned it must be considered the tallest living tree in the world.

DOUBLE VARIEGATED POLYANTHUS.

I ENCLOSE you what is to me a novelty of considerable beauty—a double variegated seedling Polyanthus, with almost twenty pips to the truss (which is good for a seedling), margin deep red tinted with pale yellow, shaded off to bright yellow in the centre: also the single variety from which it has been obtained by hybridising with the common red. I have looked through Ware's catalogue, in which about fifty distinct varieties are named and described, and can find nothing similar. Six other trusses on the same plant retain the same peculiarity, thereby precluding the idea of an individual sport. I also enclose a peculiarly marked seedling pip, with corolla on the inside yellow beautifully streaked, and on the outside a soft tinted velvety red. Having seen large collections of Polyanthuses both on the Continent and in this country, and not having observed anything like those, I thought I should bring them under your notice. It is only fair to say I obtained the seed from Messrs. Daniels, Norwich.—W. J. M., *Clonmel.*

[Your Polyanthus is a very good one, and is highly worthy of preservation.—EDS.]

SPRING SPINACH.—Our first sowing of spring Spinach was made February the 8th on a south-west border. Rivers' Ash-leaf Potatoes were planted at the same time in rows 20 inches apart. A row of Spinach was sown between the rows of Potatoes, and the first dish was ready for gathering on May the 1st. In ordinary springs we have gathered Spinach seven and eight weeks after the seed was sown, but this spring has affected it as much as any early vegetables. However, Spinach is one of the quickest vegetables to come into use which can be grown, and is much valued here; I am sure all would find it well worth a trial. It will grow well in any moderately good soil if sown in rows 10 inches apart. Here, unless for the winter crop, we rarely set a piece of ground apart for Spinach, but sow it between Potatoes, fruit bushes, or in any suitable corner of the garden.—A KITCHEN GARDENER.

ROSE LA FRANCE.

M. GUILLOT, jun., Rose grower, 27, Chemin-des-Pins, Lyon-Guillotière (Rhône), is the raiser of the magnificent Rose under notice. M. Guillot, jun., gives the following particulars as to how he obtained this splendid Rose:—

"In 1864 I sowed a tolerably large quantity of Tea Rose seeds, which came up well; amongst those numerous seedlings I selected a few of the best, which have since been sent out. Amongst these young Roses one particularly struck me as being totally distinct from all my other Tea Rose seedlings, and by its flowering the first year I took special care of it, and propagated it through grafts, which the following year produced much finer flowers than those of the parent plant. It was then that I found my Rose was really extra good. I selected good strong stocks and budded them with the best eyes from my limited stock, and awaited with impatience the advent of the blooming season of 1866. Imagine my great joy when beholding those magnificent Roses, and to find in this acquisition a Rose of especial merit. I then propagated the Rose in tolerably large numbers, so as to enable me to send it out in November, 1867, under the name of La France, in every respect worthy to bear that name. Before being sent out I exhibited it along with several other seedlings at the Paris Universal Exhibition of 1867. Every one of the fourteen blooms of La France I then exhibited measured about 5 inches in diameter. The Jury, which should have met that day according to the programme, did not appear until two days after. My Roses were already drooping and withering; the Jury therefore could not give them any prizes, but to indemnify me a single bronze medal was awarded to my whole collection, comprising all my seedlings—two hundred dwarfs and two hundred of the choicest varieties, which were in a group at the Champ-de-Mars. I cannot," adds M. Guillot, jun., "give the pedigree of my Rose La France. Considering the great number of seeds I sowed in 1864 I could not well sow each variety separate; but judging from its wood, eyes, foliage, and flowers I come to the conclusion that its parents were Tea Roses, and that it does not possess a single characteristic of other hybrids."

Here is a first-class Rose, the high qualities of which have been but poorly rewarded, but has been appreciated by the lovers of all nations, and that is the best encomium that can be passed upon it.—(*Journal des Roses.*)

PARAFFIN: ITS USE AND ABUSE.

DURING the last year or two paraffin seems to have become so great a favourite for dressing plants, that it has been praised very highly in several of the gardening papers.

Very few of us like to expose our failures before the public, but I am tempted to do so in order that others may not fall into the same trap as myself. Reading the various articles in the papers induced me to try the paraffin last year, but not knowing the exact strength to use, I had to guess at it. I first tried it upon an old Stephanotis that I did not care about, using four times as much water as paraffin. Had I waited to have seen the result before using it again I should have been wise, but as I was dressing my Vines at the time I was tempted to try it upon some of them. The mixture was applied of the same strength and as thinly as possible, care being taken not to touch the buds. I was very sanguine of success, thinking I should have no more bugs, but never was I more disappointed than with the results. The Stephanotis is killed outright, and the Vines although not killed are quite useless. The buds all started strongly until about an inch long, when they seemed to dry up as if scorched. A few shoots here and there are growing, but they look very yellow and sickly.

On page 294 "AIREDALE," says to young gardeners, "Act with caution, old men as a rule do not require this advice." Depend upon it experience has taught me a dear lesson. Perhaps someone who has used paraffin with success will state for my own and others' benefit the strength they have used without injury in dressing Vines and stove plants, such as Crotons, and more tender plants as Orchids, &c. "AIREDALE" recommends the syringe to be used, but by so doing the young leaves and shoots must receive the same share as the older

leaves. It must also trickle down into the soil. Will it not hurt the roots ?—H.

SOLANUM JASMINOIDES.

AMONGST the many valuable plants which have been introduced during the past fifty years some of undoubted merit have disappeared by degrees, and are now rarely seen anywhere but in botanic gardens. This is the case with the plant represented in the annexed engraving (fig. 50), for though it possesses several valuable qualities amply sufficient to render its cultivation desirable, yet some of our largest nurseries cannot produce a single specimen.

This species is a native of South America, and was introduced from the region of the Rio Grande about 1838. It is one of the few Solanums characterised by a climbing habit, which is effected in this case by means of the petioles of the leaves twining round any object within reach. The foliage is a pleasant dark green, and the leaves not being deciduous greatly enhances the value of the plant. The flowers are

Fig. 50.—SOLANUM JASMINOIDES.

white tinted with pale blue, very fragrant, and they are borne in moderate-sized panicles. The plant blooms in profusion during the autumn, and by judicious treatment might be had in flower during several dreary months. As a greenhouse plant for training up the rafters or over trellises of various shapes, and for yielding a supply of flowers at a time when few can be obtained, it certainly deserves more attention than it has hitherto received. The soil required is a moderately light loam with an admixture of sand ; and the plant, whether in a pot or planted out, should have but a moderate allowance of water during the winter.

As regards its hardiness we may mention that there has been a plant trained on a south wall at Kew for several years, and until last winter it had escaped uninjured, but the frosts we then experienced were so severe that it now appears to be nearly dead, although the warm weather may possibly induce the production of a shoot from the roots.—LEWIS CASTLE.

HERBACEOUS PLANTS.—It is because I sympathise with the case of "WYLD SAVAGE" that I advise him not to plant any herbaceous plants at this season unless they have been prepared for the purpose. It is too late to give them justice. Were I in the same position with "WYLD SAVAGE" I would buy sufficient seeds of a few of the best hardy annuals, and sow these in all vacant spaces. Sown thinly, and not allowed to overcrowd after they are above ground, the plants will afford great interest, besides being beautiful and useful

throughout the late summer and autumn months. I grow a selection of the best hardy herbaceous plants, and shall be glad to help your correspondent to "make a beginning" in autumn.—R. P. B.

EMPLOYERS' DIFFICULTIES.

I AM sorry to see your sensible correspondent "A NORTHERN GARDENER" tacitly consenting to the views of "BUSY" (page 283) on the subject of gardeners and their work. I do not like the substance of "BUSY'S" remarks. Perhaps he pays his gardener sufficiently for working in his garden from dawn to dark. If not, may I ask him what right he has to expect him to work in the garden after the usual hours of work are over unless he chooses to do so voluntarily? I am not acquainted with any class of men who willingly work for nothing in these days. I allude to this subject more particularly because the practice among head gardeners—and to a less degree among employers—of pressing their young men to work extra hours without pay during summer, in addition to their usual duties in the way of stoking and Sunday work, &c., is far too common, more particularly in Scotland, where some head gardeners are neither more nor less than petty despots.

I could name gardens where all the Grape-thinning, tying, and training, and much of the potting and cleaning of the plants, is done after six o'clock or before that hour in the morning, and for which the men are not even thanked. They are perhaps allowed a day or two holiday in the course of the year, but which would not make up for a couple or three Sundays, usually the hardest day in the week, and very often taken in turn once every two or three weeks. I would never think of discouraging any man from working at his charge in after hours if an interest in his work induced him to do so voluntarily, but no head gardener or employer has any right to complain if their gardener, after giving the whole day to their charge, chooses to spend his few hours of leisure even in reading the newspaper, novels, or poetry, if so minded. I speak as a head gardener who has learned his business by the "sweating process," and who yields to none in his love for his profession, but at the same time realises that a man must live by it without being its slave.

During some ten years of probationary career I was sickened of the extra-hours practice sufficiently to make me resolve, should I ever be so fortunate as to get a head gardener's situation, never to ask the men under me to work for nothing, and I have kept that resolution. Our men are engaged on the distinct understanding that they must work extra time if required, but they are paid for it at 1*d.* or 2*d.* per hour over the usual figure, and not unfrequently the extra pay is worth a new coat to some of them, and would have been something to the writer at one time. The plea advanced by some head gardeners that men "who wish to learn and who take an interest in their work, &c.," should be ready to work at reasonable and unreasonable hours if required, is the merest sophistry, and employed only to cover an excuse for getting men to do work for which employers cannot or will not pay.

The garden labourers are never asked to do extra work for nothing for the very good reason that they will not do it and cannot be compelled, the interests at stake in their case not being so great as with young men with the sword of Damocles hanging over their heads in the shape of a discharge without a character.

Plenty of your readers who peruse these remarks know whether I am exaggerating or not, and possibly "A NORTHERN GARDENER" can testify to their correctness. In a large place where the writer was once a journeyman the young men had to ask if they were wanted before they could leave their lotting in the evening, and in several instances the men were dismissed for not conforming to the practice on all occasions. The gardener was not an unkind man, and was always willing to help, and did often help, deserving men, but he was an enthusiast in his business, and had a mistaken notion of the obligations due from his men. No small experience convinces me that a will to do and an interest in his charge is not incompatible with a desire to have the disposal of his own leisure in the case of any man. I feel sure that the practice of paying garden men for all extra work will be found the best in the end for both master and men. When I came to my present situation I found the practice of working extra time without pay during the Grape-thinning period—extending over several weeks—bedding-out, &c., and when I began to enter the same in the books it attracted attention in certain quarters, and I was told that it had not been entered before; but when I in as respectful a manner as possible pointed out that the gardeners had no more right to perform extra work for nothing than the carpenters, the masons, or the painters, &c., who were paid for every hour they were employed after six o'clock, the reasonableness of the thing was granted at once, and since that time things have gone smoothly enough, but we do without such labour as far as possible.—A HEAD GARDENER.

PORTRAITS OF NEW AND NOTABLE PLANTS.

EUCHLÆNA LUXURIANS. *Nat. ord.*, Gramineæ.—"Few fodder Grasses have of late years attracted more attention than this magnificent plant, whether for its supposed value or for its botanical interest. The first notice of it is contained in an interesting article communicated by the late M. Durièu de Maisonneuve (Director of the Botanical Garden at Bordeaux) to the Acclimatation Society of France in 1872, which states that the author received the seeds from the Society about four years previously under the name of Teosinté, and as coming from Guatemala. From experiments made with it in Bordeaux, Collioure, and Antibes, he pronounced it to be a plant *d'une végétation prodigieuse*, every seed producing about one hundred stems, and these attaining 10 feet in height, but as incapable of flowering in these localities, and as cut down by the first frosts. From imperfect flowers produced at Antibes he refers it to the genus Reana, which is a synonym of Euchlæna, as pointed out by Ascherson in the paper quoted under the specific character. Latterly this Grass has been successfully cultivated at Cairo, from whence excellent specimens and seeds were sent by Dr. Schweinfurth, and its valuable properties as a fodder Grass have been abundantly verified. Seeds of it have been distributed both from Kew and from Cairo to Cyprus, and the East and West Indies, Australia, and tropical Africa."—(*Bot. Mag.*, *t. 6414.*)

MONNINA XALAPENSIS. *Nat. ord.*, Polygaleæ.—"Apparently a common and variable Mexican plant, at an elevation of 3000 to 4000 feet, where it was discovered by Humboldt and Bonpland. It forms an evergreen shrub or small tree, conspicuous for its bright green foliage and copious racemes of blue flowers. The genus, which is a large one, containing some fifty species, is confined to South America, and is allied to Polygala, differing in the arrangement of the petals and the indehiscent fruit. Lady Dorothy Nevill furnished the specimen figured, which flowered in the gardens of Dangstein in October last. It is the last plant probably that will be figured from that noble private collection, which is shortly to be broken up, to the deep regret of all lovers of botany and horticulture."—(*Ibid.*, *t. 6415.*)

CROCUS VITELLINUS. *Nat. ord.*, Iridaceæ.—"This is the only yellow-flowered Crocus of the section with a much-divided style. It is an inhabitant of Syria and Asia Minor, and now that we possess a fuller supply of material it seems clear that, as was first suggested by Mr. G. Maw, syriacus and vitellinus are only two forms of one and the same species, one with a striped, and the other with a concolorous perianth-limb. We have the type from several places on the western slope towards Saida and Beyrout of the Lebanon range, where it was discovered by a Swedish traveller called Berggren in 1820, and also from the neighbourhood of Smyrna, where it was found by Balansa in 1854. Of the striped variety there is a specimen in the Banksian herbarium, gathered about Aleppo a hundred years ago by Dr. Russell, and it has been lately refound in the same neighbourhood by Dr. Haussknecht, and in the Cilician Taurus by Mr. and Mrs. Danford. The plant flowers from November to March, and is still rare in English gardens."—(*Ibid.*, *t. 6416.*)

COTYLEDON RAMOSISSIMA. *Nat. ord.*, Crassulaceæ.—"A native of the interior districts of South Africa, as at Uitenhage, George, the Zwartkops river, where it forms a bush from 1 to 3 feet high, remarkable for its density, bushy and leafy habit, and the pale glaucous green of the foliage and young parts. It is very closely allied to the beautiful C. orbiculata. Cotyledon ramosissima has been long cultivated at Kew, and all trace of its introduction is lost, though this must have been since the date of the publication of the second edition of the 'Hortus Kewensis'—namely, 1811, in which work it is not described; it was, however, discovered soon after that date (in 1813) by Burchell, whose specimens are at the Kew herbaries. The Kew plant was sent by Mr. McGibbon, of the Cape Town Botanical Gardens, and flowered in the month of September."—(*Ibid.*, *t. 6417.*)

CARLUDOVICA ENSIFORMIS. *Nat. ord.*, Cyclanthese.—"One of the species of Carludovica only has been figured in this magazine—namely, Ludovia latifolia. The name Ludovia was substituted by Persoon for the original one, Carludovica (of Ruiz and Pavon), on the ground of the barbarity of so latinising the conjoint names of Charles XI. of Spain and his Queen Louisa, after whom the genus was so called. As, however, in so many other cases, euphony has carried the day over classical rules and the laws of botanical nomenclature, for Carludovica has wholly superseded Ludovia amongst botanists. This curious plant was imported from Costa Rica a good many years ago, and flowered for the first time in June, 1874."—(*Ibid., t. 6418.*)

REVIEW OF BOOKS.

Kitchen Gardening Made Easy. By GEORGE M. F. GLENNY. London: Crosby Lockwood & Co.

Vegetables, and How to Grow Them. By JOSEPH LANSDELL. Leicester: Herbert J. Marshall.

JUDGING by the number of books that are published on the subject, and the rapidity with which one new work follows another, we might suppose either that kitchen gardening was a subject of supreme importance, or that those who are engaged in it were extremely ignorant on the routine of vegetable culture. Books large and small are devoted to this particular section of gardening; the horticultural press gives weekly instructions on the subject; general newspapers give chapters on the same theme; and trade catalogues give full, copious, and generally sound directions on the cultivation of the useful crops of the garden.

The title of the first book under notice suggests that other works on the same subject are too erudite for a large class who are engaged in vegetable culture, and that some clear and plain work is required that cannot fail of being understood by all readers. Yet this is not quite the character of "Kitchen Gardening Made Easy." The book is by no means plainly and concisely written, but, on the contrary, some of the chapters are, to use a phrase more expressive than elegant, somewhat "wordy," and, moreover, the words are not of the simplest. Thus on page 13 it is stated that "the fibres of the root take up the nutriment they meet with in the soil by introsusception," a word which plain people will not readily understand (and if they refer to the dictionary they will not be much wiser), and one which more advanced readers do not require. Had the author employed the strictly applicable term endosmose he would have been both scientific and correct.

The first part of the book, relating to the formation and requirements of a kitchen garden, is elaborately written, and while the advice given is sound enough it certainly does not render the subject more "easy" of being understood than it was before. The second part of the volume is devoted to vegetables and their culture, and is simply, perhaps necessarily, an old tale told in different language and a narration of practice that is generally adopted. With the instructions in the chapter on Broccoli we totally disagree. "A rich soil," it is stated, "is indispensable, and the ground cannot be too vigorously dug or too well manured." Our comment on that is, that those who have adopted the practice recommended have few or no Broccoli for cutting this spring—not even, we venture to say, has the author of the advice in question.

The remaining chapters call for no comment; but we may observe of the list of vegetables recommended, that "Walcheren Broccoli," and "Veitche's Autumn Giant Cauliflower," and "Veitche's Perfection Peas" represent a mode of orthography not common in garden literature. The book will no doubt be useful to many readers, but we are compelled to observe that it does not make "kitchen gardening" more "easy" of being understood than do other books of the same nature.

We now turn to Mr. Lansdell's production, which ought to have been entitled "Kitchen Gardening in Miniature." The author has probably read the late Mr. Pearson's characteristic introduction to his little work on Vine culture, and has profited by it. "It would be easy," wrote the lamented Chilwell author, "to write more, but I know from experience to multiply directions is to decrease the chance of their being understood, remembered, and followed." The author of "Vegetables, and How to Grow Them," is evidently of the same opinion. The chapters on the culture of the different kinds of vegetables are remarkable for their brevity. The author's aim has obviously been to say what he had to say in as few words as possible, and these words are commendably simple. Mr. Lansdell is a good gardener, and has detailed practice that he has proved successful. It is true that it is not in all cases correctly detailed from a literary point of view, but it is nevertheless easy of being understood, and thus will answer its purpose. Turning to the remarks on Broccoli (which we observe is spelled with one "c" only) we do not find any parodying of the "rich deep soil" theory. "Brocoli," to quote from page 28, "that are to come into use in the autumn should have a good dressing" (of manure, we presume), "but those that are to come in the spring are better without it, as they do not stand the frost so well." That is sound teaching: indeed the instructions are generally sound, but some of the errors are a little amusing.

SPIDERS AND PLANTS.—I do not discredit the accuracy of the observations made by "A. M. B." (page 325), but I believe the instances of spiders attacking plants are excessively rare. These creatures are predatory in habit, and from their destroying many insects we usually regard them as the gardener's allies. Some web-making spiders certainly disfigure trees and bushes; the species indicated as haunting the Rose is, however, a hunting species. Still, I would not be answerable for any spider reduced to extremity for food; hungry men have eaten rats and grass.—J. R. S. C.

WORK FOR THE WEEK.

FRUIT HOUSES.

Vines.—Forcing has had to be carried out almost exclusively by the aid of artificial heat, it being equally necessary to maintain the day as well as night temperatures. Red spider has not increased this season as it does in bright and dry weather, for then the atmospheric moisture and water at the roots are not proportionate to the demands of evaporation; but lately, owing to the dull weather, evaporation has not been considerable. Where red spider has obtained a hold prompt measures for its destruction must be adopted. Some resort to the syringe, but this is not to be recommended, as after the Grapes are advanced in colouring the bloom on the berries is liable to be more or less damaged by the water. Sponging the leaves is at best but a partial and tedious operation. The judicious application of sulphur to the hot-water pipes is the most efficacious remedy. Flowers of sulphur should be mixed with skim milk, and when the pipes are heated to about 212° apply the sulphur with a brush, and maintain the pipes at a high temperature for about an hour, and then the heat may be allowed to fall to the ordinary degree. A calm evening should be chosen, and the following evening repeat the process. Where fermenting material in outside borders has become cold and heavy a portion should now be removed, but leave sufficient to avoid giving a sudden check. Early Grapes that are ripe will only require enough fire heat to maintain a circulation of dry air, allowing the temperature to fall to 60° at night. Late kinds making rapid growth must be tied out and stopped as soon as they have made sufficient wood to cover the trellis with foliage. The weather has not been without its effect upon the foliage of Vines, for the leaves are yellow and thin in texture, greatly needing sun to give them a healthy green colour. Every advantage should be taken of sun heat to increase the ventilation early in the day, but closing early, which is a means of prolonging the health of the Vines, excessive firing being injurious. The remarks as to thinning, disbudding, stopping, and tying given in former calendars still apply; especially let all superfluous bunches be removed so soon as the number to be left on a Vine is decided. Examine the borders of succession houses at least once weekly, and when dry water freely. Inside borders will take almost any quantity of water after the Vines are in full foliage, and with a full crop of Grapes liquid manure should be applied at every alternate watering. Outside borders will not yet require water, as they are not only wet enough, but cold also; but if the borders are high and dry a copious watering at a temperature of 90° will be advantageous. Newly planted Vines must not be allowed to suffer from being too dry, and in training them let all the wood remain that can be exposed to light; but supernumeraries intended for next year's fruiting should be more closely pinched to secure stouter growth and well-developed eyes.

Figs.—The earliest forced trees in pots will now have ripe fruit, therefore watering at the roots must be lessened, but still afford the supplies needed to keep the foliage in good order, and discontinue syringing overhead, to improve the flavour of the fruit. For the colouring process a free circulation of warm air is necessary, leaving the top ventilators open a little at night, the highest-coloured fruits being the best flavoured. As soon as the first crop is gathered commence syringing the trees twice a day, also watering copiously at the roots with weak guano water, which will enable the trees to make a more vigorous second growth. If in the second crop the fruit show very abundantly they must be thinned, so as not to overburden the trees to the prejudice of next season's

bearing. The trees planted permanently in houses will require attention in stopping the young shoots, and thinning out the strong-growing shoots to admit light and air to the fruit. Attend to syringing the trees twice daily, and water abundantly at the roots as often as required, employing weak liquid manure especially where the borders are small. If the early crop of Figs has not yet commenced ripening there will soon be indications of its taking place, and until the crop is perfected a little ventilation should be allowed constantly at the top of the house, and whenever the weather is favourable a free circulation of warm air must be afforded. Cease syringing the trees when ripening commences, and avoid a superabundancy of moisture about the house. A good watering should be given when indications of ripening appear, which more particularly applies to large trees with only limited space for the roots. Let the fruit be perfectly ripe before gathering, unless it is to be packed, when it should be gathered a few days sooner.

Cucumbers.—A clean growth is of the utmost importance in the cultivation of Cucumbers; therefore fumigate upon the first appearance of aphis, and if thrips appear fumigate moderately two or three evenings in succession. Red spider is the worst enemy and the most difficult to subdue. Sponging the leaves is at best only partially effective besides being tedious; the structure of the leaf is of such a nature as to render it nearly impossible to penetrate all the interstices without serious injury to the leaf, which is better removed. Sulphuring the pipes is the best remedy, but it must be done carefully or the foliage will be scorched. A good root-action is of great importance, watering liberally, and with liquid manure, especially guano water, which appears to have a potent effect upon the foliage in resisting attacks of red spider. Keep plenty of moisture in the house through the day, syringing in the morning and again at 3.30 or 4 P.M. Damp down well at night, a practice seldom insisted on, but one extensively followed by many good gardeners in houses where a high night temperature is maintained by artificial means. A slight shade will be required for an hour or two at midday in the case of lean-to houses with a south aspect, but spans or lean-to's facing east and west will not require shading. Dispense with fire heat as much as possible by day, shutting off the heat at about 8 A.M. and turning it on again at about 5 P.M.; but the temperature must be maintained at 70° to 75° by day and 70° at night, falling to 65° on cold mornings. As fast as pits and frames are at liberty let them be utilised for the production of Cucumbers, from which the summer supply of fruit is obtained where there is but one house devoted to their growth—*i.e.*, for the winter and spring supply. Sufficient sweetened fermenting material must be employed to secure a good and lasting bottom heat. Keep up a good degree of heat in pits or frames wherein the plants are established by renewing the linings as required, keeping the foliage rather thin, removing bad leaves the moment they appear; and by frequent stopping and thinning, especially of exhausted growths, provide wood to maintain the plants in steady bearing, avoiding over-cropping and allowing the fruit to remain too long.

PLANT HOUSES.

Stove.—Neriums though not stove plants are often grown there; and where provided in 6 to 8-inch pots in anything like quantity a succession of flowers may be had for many weeks. The flowers are fine for cutting, especially the white varieties, and the plants are valuable for decoration. Being free-rooting and water-loving plants they should be well supplied with that element, keeping the plants near the glass. There are no more useful summer decorative plants than Gloxinias, for they afford a grand display in a conservatory; but they are often spoiled for this purpose by being grown in too much heat and crowded among other plants or at too great a distance from the glass. To prepare them for such quarters they should be advanced where the temperature is not much over 60° at night, keeping them near the glass on shelves, affording them plenty of air. Achimenes for the same purpose, whether grown in pans or baskets, should be treated similarly, as they will then continue in flower longer than plants with softer growth, and their vigour is enhanced by watering with liquid manure so soon as flowers are showing. Poinsettias cut back and started some time ago will have made growth sufficient for cuttings. These should be taken off with a heel close to the stem, and when from 3 to 4 inches in length, as they have then much more solid woody matter than the shoots of more than twice the length possess higher up. They strike readily in sandy loam in gentle heat kept a little close. The old plants may be shook out when they have made a few inches' growth, potting them in 7 or 8-inch pots in good turfy loam with about a sixth of sand. After potting place the plants in heat for a short time to encourage root-action, and afterwards keep them near the glass with no more heat than is necessary to keep them gently growing.

Greenhouse.—Young plants of Heaths that were potted in February will be growing fast. If good plants are wanted early the flowers should be picked off. Heaths require free ventilation, which is easy enough where a separate house is provided for them, and where such does not exist they should be placed at one end of the house where they can have more air than is given the other occupants.

Azaleas.—With a view to increasing the size of the flowers the plants should be syringed every evening as soon as the flowers are fairly showing colour whilst the sun is yet upon the house, closing the house at the same time; the increased temperature and consequent moisture will tend to the development of the flowers. Shade will be necessary, as bright sunlight acts disastrously upon the high-coloured varieties. Those that have flowered should have the seedpods removed, as their remaining on the plant injuriously affects the young growth. The plants should be kept rather close and moist, syringing every evening so as to induce free growth with just sufficient shade to prevent scorching. Any plants that have become too large and straggling may be cut back, but it must not be carried too far, and not attempted unless the roots are in a satisfactory condition. The plants must then be placed in a warm moist atmosphere, syringing them twice daily and keeping the soil rather dry until they have made an inch of growth.

Oranges.—These whilst making their growth require plentiful supplies of water, especially overhead, and where the glass is large slight shade is desirable. The trees often become unhealthy and have a stunted appearance, in which case it is best to turn them out of the pots and reduce the balls considerably, repotting the plants in smaller pots and placing them at once in moderate heat with a moist atmosphere until the growth is made. The Otaheite Orange is very useful for winter flowering, and should when out of bloom have its growth pushed forward in moderate warmth; indeed Oranges to do well require the temperature accorded to Vines. Scale should be kept under by sponging with soapy water as required.

Camellias.—The earliest-flowered plants that have made a corresponding early growth must not be continued too long in heat, but be removed to more airy quarters after the growth is completed and the buds showing. Plants making growth should be assisted by watering them copiously and syringing them overhead twice a day, which will induce freer growth than if they are kept dry. They must be shaded from bright sun.

TRADE CATALOGUES RECEIVED.

W. Paul & Son, Waltham Cross, Herts. — *Catalogue of New Roses, Geraniums, &c.*

Henderson & Son, Pine Apple Nursery, Maida Vale.—*Catalogue of Bedding Plants.*

J. Linden, Ghent, Belgium.—*Catalogue of Plants.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (*W. W.*).—We do not know of any books of the kind you appear to require. (*J. Brown*).—Perhaps the "Garden Manual," 1*s.* 9*d.*, post free from this office, will suit you.

GLASS EDGING TILES (*Subscriber*).—We find that Messrs. Kilner, Brothers, 10, Upper Thames Street, London, E.C., are makers of glass border edging.

STEPHANOTIS NOT FLOWERING (*W. M. G.*).—This plant often fails to flower on account of the growth being much too crowded on a wire trellis. The proper mode is to train the growth thinly on strings or wires close to the glass, and there let them remain until the flowers are visible in the axils of the leaves, when the growths can be taken down and trained on a trellis if a well-flowered specimen plant is required. There is, however, a robust-growing variety of this plant that only flowers sparsely under any circumstances, and of which we have seen more than one example in your district.

VALERIANA PHU (*A Durham Subscriber*).—This is largely grown in the gardens at Lambton Castle as a golden-foliaged spring bedding plant, the foliage turning green in the summer. It was introduced from Germany in 1597. Cypripedium Calceolus is rarely found growing wild in this country, and is now nearly extinct. Hooker's "Student's Flora," price 10*s.* 6*d.*, will probably suit you. It can be obtained through a bookseller.

HARDY FLOWERING SHRUBS (*Ashleigh*).—Rhododendrons are the only flowering shrubs you may venture upon planting now. Of other shrubs to be planted in the autumn in an exposed situation you may safely venture upon the following choice selection:—Ligustrum japonicum, Mahonia aquifolia, Berberis Darwinii, B. dulcis, B. stenophylla, B. japonica, B. Wallichiana, Escallonia macrantha, E. pterocladon, Potentilla fruticosa, Spartium junceum (Spanish Broom), S. multiflorum (White Portuguese Broom), Buddlea globosa, and double Gorse. These are all evergreens. Arbutuses might also have a trial, as they grow freely in such a soil as yours, but require a sheltered situation to perfect their fruit. Of deciduous shrubs the best are Elæagnus longipes, Deutzia crenata flore-pleno, Cotoneaster Simmondsii, Forsythia viridissima, Prunus sinensis flore-pleno, Hibiscus syriacus, Lonicera odoratissima, Leycesteria formosa—perhaps a little too liable to suffer from extreme cold—Pæonia Moutan, Spiræa Thunbergii, S. Lindleyana, S. Douglasii, S. ariæfolia, Ribes aureum, R. sanguineum, R. s. atrorubrum, Rhus Cotinus, Rubus fruticosus flore-pleno, Sambucus nigra, Syringa vulgaris, Weigela rosea, and W. Desboisii.

DEUTZIA AND SPIRÆA JAPONICA AFTER FLOWERING (*Young Beginner*).—The Deutzias should have the old wood thinned out and free growth

encouraged by keeping the plants in a light airy house until they have completed their growth, when they should be gradually hardened off and placed out of doors in a warm situation and duly attended to with water. Cuttings of the young wood when about half ripe strike freely if taken off with a heel and inserted in sandy soil, placing them in gentle heat and keeping them rather close, moist, and shaded. The Spiræas should be hardened off, and may be divided as much as the clumps will bear, planting in good rich soil in an open situation and supplying liberally with water.

GLASS HOUSES (*Old Subscriber*).—They are rateable to the tenant.

SELECT HERBACEOUS PLANTS (*J. D.*).—Adonis vernalis, Allium grandiflorum, A. ciliatum, Alyssum orientale, Anemone fulgens, A. japonica alba, A. narcissiflora, Anthericum Liliastrum, Aquilegia chrysantha, A. glandulosa, Arabis albida variegata, Aster Amellus major, A. coccineus, A. longifolius formosus, Aubrietia græca, Betonica grandiflora, Borago laxiflora, Botryanthus (Muscari) paradoxus, Brodiæa coccinea, Calochortus elegans, C. luteus oculatus, C. venustus, Campanula aggregata, C. Hendersoni, C. macrantha, C. macrantha alba, Cardamine asarifolia, Cheiranthus longifolius, Coreopsis auriculata, Delphinium Belladonna, D. alopecuroides, D. nudicaule, Dianthus atrorubens, D. cruentus, D. fragrans, D. neglectus, Dielytra spectabilis and var. alba, Doronicum Clusi, Dodecatheon integrifolium, Epimedium pinnatum elegans, Erigeron macranthus, Fuchsia corallina, Gentiana acaulis, G. verna, Geum coocineum flore-pleno, Helleborus niger maximus, H. orientalis, H. olympicus, H. colchicus, Hemerocallis Kwanso variegata, Hepatica angulosa, H. triloba vars., Hyacinthus candicans, Iberis correæfolia, Lilium auratum, L. colchicum, L. candidum, L. longiflorum, L. tenuifolium, L. tigrinum splendens, Lychnis Flos-Jovis, Lupinus nutkaensis, Myosotis dissitiflora, Narcissus bicolor, N. minor, N. poeticus plenus, N. pumilus and var. plenus, Œnothera macrocarpa, Œ. Youngi, Omphalodes verna, Orobus lathyroides, Pæonia albiflora fragrans and var. festiva, P. odorata grandiflora, P. officinalis vars., P. tenuifolia and var. plena, Papaver nudicaule album, Pentstemon humilis, Phlox verna, Polemonium cœruleum variegatum, Potentilla splendens, Primula acaulis vars., P. marginata, P. cortusoides amœna, P. denticulata, P. purpurea, P. nivalis, Pulmonaria azurea, Ranunculus amplexicaulis, Salvia pratensis lupinoides, Saxifraga granulata plena, S. longifolia, Scilla sibirica, Sedum atropurpureum, Senecio pulcher, Spiræa filipendula plena, S. japonica, S. palmata, S. venusta, Thalictrum aquilegifolium rubrum, Trollius europæus, Tritoma Uvaria, Veronica prostrata, and V. amethystina.

MARÉCHAL NIEL ROSE UNHEALTHY (*Surrey*).—If your Roses are planted outside the same as Vines and the stems are not protected they may have received injury by the winter's severity. If they are planted inside we think the border has been kept too dry. Further, the syringing that you appear to have been compelled to indulge in, together with the low temperature of the house, would affect the expanding buds injuriously. We should apply liquid manure to the roots copiously, and cut away a great portion of the wood that has flowered so as to originate a free growth of young shoots as near the base of the rafters as possible; these, if permitted to grow unchecked and are left nearly or quite their entire length, will bloom freely another year. You may cut out the flowering wood at any time, your object being by generous culture to encourage the production of vigorous young shoots.

CALCEOLARIAS (*H. P.*).—The flowers are not so large nor correct in form as many others that have come under our notice, but the colours are clear and good, and the foliage fine. They arrived, however, in a semi-withered state.

VINE UNFRUITFUL (*R. D.*).—Trentham Black usually both grows and fruits freely. Your Vine appears to be too luxuriant, and the wood does not become properly matured. Train the laterals very thinly so that every leaf has full exposure to the light, and then if it does not fruit freely next year remove it. Possibly you may not have the true variety. Your white Grape is not White Frontignan, which is a round Grape. We should like to see a bunch of your oval-shaped white Grape when it is ripe and in good condition.

EVERGREEN SHRUBS, &c., FOR WINDOW BOXES IN WINTER (*G. O. S.*).—The following shrubs would be suitable, procuring them of such height as you require:—Thuja aurea and T. pygmæa, Laurustinus, Cryptomeria elegans nana, Cupressus Lawsoniana albo-variegata, C. L. nana glauca, Skimmia japonica, Andromeda floribunda, Hedera arborea aurea, H. a. elegantissima, Euonymus radicans variegatus, Erica herbacea carnea, and Vinca elegantissima, the three last being suitable for the margins.

LILIUMS (*C. P. L.*).—The compost in which your plants are growing is suitable, but it should be supplemented with surface dressings of decomposed manure when stem roots are being produced. When the plants are in full growth and the pots are filled with roots applications of clear soot water will be beneficial to the plants. Abundance of light and air are essential for the production of sturdy growth and fine flowers. Possibly the plant to which you refer is Montbretia Pottsii, a hardy bulbous plant from the Cape of Good Hope with bright orange-brown flowers.

EASTNOR CASTLE MELON (*M. M.*).—It is an excellent variety, and not at all tender. Melons will thrive in your new pit if you afford them the requisite amount of heat and moisture, and otherwise manage them in accordance with the directions given from time to time in our "Work for the Week" column.

PEAR TREES UNFRUITFUL (*Coventry*).—We cannot inform you why your Pear trees do not bear fruit. You neither state the nature of the soil, the condition of the trees, the varieties, nor the stocks on which they are grafted. If the trees are healthy we should graft them with other Pears that bear well in your neighbourhood.

MUSAS (*E. F. B*).—The price of Musas depends on the size and the species. We presume you want a plant of M. Cavendishi, which is the dwarf-growing one. They are priced at about 10*s.* 6*d.* in some catalogues.

MELONS (*A. B. C.*).—The leaf is abnormal, and due to the prolonged cold and sunless weather. As such leaves only appear near the stem we should remove them, but do not pull up the plants, as they will improve with better weather, and will no doubt show fruit abundantly; besides, it would be only so much time lost, as the growths at 12 to 15 inches distance from the stem are all right.

WATERING PEACH TREES—POTTING TOMATOES (*Idem*).—The Peach trees must not be neglected for water, but the border should be made thoroughly moist, as if the roots suffer it is likely the blossom will drop without setting. The Tomatoes may be shifted into 8 or 9-inch pots, and then into 12 or 15-inch pots, leaving about 2 or 3-inch space for top-dressings to be given after they have commenced fruiting.

ESTIMATE OF PIPING FOR HEATING (*A Young Gardener*).—For practical purposes it will be sufficient to state, that for all lean-to houses, dividing the cubic feet of air inside by 30 will give the number of 4-inch pipe sufficient to heat the house to 60°, unless in extraordinary weather. Dividing the cubic feet of air by 20 will show the length of piping to keep up a heat of 70° to 75°, and when from 75° and upwards the cubic feet of air must be divided by 18. Span-roofed houses must have more piping in proportion. The large conservatory at Chatsworth has been kept to 60° in very severe weather with one foot of 4-inch piping to every thirty cubic feet of air, although it is glass all round. But for a span-house not a third or a fourth of the height more piping would be required in proportion, as the great body of enclosed air in such a large house prevents the house, as a whole, from being suddenly cooled. The smaller the house the more quickly is it acted upon either by heat or cold.

HEATING GREENHOUSE (*G. B. A.*).—We recommend you to have a boiler heated with a mixture of coal and coke. Two rows of 4-inch pipes round the house will be sufficient, but you must avoid having any dips in the flow pipes across the doorways.

THRIPS ON VINES (*F. Z.*).—As fumigation does not check the increase of the insects, we recommend you to dissolve about 2 ozs. of soft soap in a gallon of water, adding also about a quarter of a pint of tobacco water, and sponge every leaf. The work is a little tedious, but you will be well repaid for all the trouble bestowed. If the thrips have another year of feasting similar to the last they will probably ruin your Vines, so that you must not begrudge a little time being devoted to the eradication of the pest. So long as the flame does not pass through the fumigator no injury will be done by it. Assuming that the heights of the plants are suitable (you do not name the varieties), we should arrange the border thus, commencing from the front—Blue Lobelia, Golden Feather, scarlet Geranium, white Geranium, dark Calceolaria, and African Marigolds.

LIME FOR VINE BORDERS (*D. P. B.*).—As the soil is very rich by constant application of manure, a dressing of lime would undoubtedly be beneficial. The lime should be newly slaked, and may be spread on the borders a quarter of an inch thick and be carefully pointed-in with a fork. A subsequent heavy dressing of wood ashes would be further beneficial. Apply the lime at once, the ashes when you can obtain them.

MANURES FOR ROSES (*Dunkeld*).—Place a peck of soot in a tub, and add to it thirty gallons of water, first forming the soot into a paste by adding a little water, then filling up the vessel, or the soot may be placed in a coarse sack and be suspended in the water. About 7 lbs. of dried blood manure to the quantity of water above mentioned will be sufficient. The liquid will be of the proper strength for Roses in the open ground. For plants in pots it should be diluted with half the quantity of water.

ANTS IN ORCHARD HOUSE (*E. D. L.*).—You may syringe the trees with quassia water without fear of making the fruit taste, but it will only make the Peaches distasteful to the ants for a short time. The quassia water must not be employed after the fruit commences to ripen. Place the treacle in jars without the arsenic, smearing some on the sides so as to tempt them to descend, and place some pieces of wood against the outside to admit of their ascending.

NIGHT SOIL (*A Novice*).—If the soil to which it is to be applied is heavy mix it with coal ashes—seven parts ashes to one of night soil. If the soil is light mix it with the same proportions of that soil.

FUNGUS (*H. N. O., Mallow*).—It is the Morel (Morchella esculenta), and there is a drawing and full description of it in this Journal, vol. xxx., page 372. It is wholesome, and much used in cookery.

CARBOLIC ACID (*Tyro*).—We have had no experience of it as a manure. Diluted sewage is good for all vegetable crops. Rhubarb seeding so abundantly is usually caused by the plant's growth being suddenly and protractedly checked.

NAMES OF PLANTS (*J. C.*).—1, Pulmonaria angustifolia; 2, Cacalia articulata; 3, Bellis perennis (double-flowered); 4, Erica mediterranea carnea; 5, Laurustinus (Viburnum Tinus). (*Coventry*).—3, Eupatorium odoratissimum; 4, Mahonia aquifolia; 7, Thuja aurea; 8, Libocedrus decurrens. The blue flower is a Pulmonaria, probably P. angustifolia. We cannot name the others from such withered and imperfect specimens.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

THE FEEDING AND FATTING OF SHEEP.

(*Continued from page 332.*)

OUR last remark referring to the feeding off Turnips was that they should be finished by the 1st of October, because if further delay is allowed it would oftentimes injure the land in preparation for the wheat crop, whereas if the land is quite at liberty for ploughing and sowing at that time there would be a prospect of turning to good account the valuable manure left behind by the fatting sheep. We fear, however, that in too many cases considerable sacrifices are made by feeding sheep and holding them on beyond a period when they are beneficial in manuring the land, and this generally happens in consequence of there being no decided rule laid down for their management, time of sale, &c., included. Turnips upon heavy land are only admissible to a small extent, and only taken as a second crop after one of the early fodder crops, such as rye, and also trifolium; and whilst the sheep are feeding on turnips they should get them cut and placed in troughs with meal in admixture, in this way in the autumn these prove very good materials fo completing the fattening process.

In regard to the health of sheep in the summer months it is generally good, with the exception of the foot rot or epidemic lameness. The short-woolled down sheep and cross-breds suffer most in this respect, the long-woolled sheep not being so liable to be affected. The home farmer must remember that it is entirely in consequence of neglect at the outbreak of this lameness that it ever becomes a serious injury to their well-doing, because in our own practice we have always been very particular, so that as soon as an animal becomes lame it is removed from the flock the same day to some convenient and dry place, and treated with the remedy which has been often alluded to in these columns; this quite prevents infection extending to the flock or serious damage to the individual sheep which may be attacked.

About midsummer the sheep, whether of tegs or wethers, should be washed and shorn. The washing should be carefully done, so that the wool may be made clean, and in the absence of any trough or tank designed for the purpose care also should be taken that no animals be kept in the water too long, because we have frequently known sheep take in water internally and die soon after, or suffer injury to their health for some days. It is also important that in very hot sunny days sheep should not be allowed to collect under the shade of trees or upon borders of the fields. To prevent this, so that their manure may be left in the field, we put them into a dead fold shifted daily, and they remain there from ten o'clock in the morning until four o'clock in the afternoon, and in this fold they receive their cut roots and meal in troughs.

An important point arises as to the best size of the ridges upon heavy land when cropped with fodder crops for feeding and fatting sheep. It is usual in various counties to sow the green crops upon small narrow ridges about 8 feet wide, some as narrow as 5 feet; but this is very dangerous night quarters for sheep, as they often get upon their backs, and are found dead in the morning, and even in daytime they require careful watching, particularly just before shearing time, when their wool is often a burden to them; in fact the wool often contains ticks and other parasites which irritate the animals and induce them to roll over, and in the hollows between the ridges, which is quite a trap for them, they are unable, particularly when fat and in a comparatively helpless condition, to regain their footing. We have known and seen numbers of sheep lost for want of proper care, but upon the large and wide high-backed ridges as they are called, peculiar to some of the midland counties, the sheep lie about with greater safety; and these ridges being generally from 36 feet to 40 feet in width any folding may be made to fit the ridges, in which case the stock rests in perfect security.

We must now refer to the second part of the subject—that is, the feeding and fatting sheep upon the dry loam, gravelly, and stone brash soils; and as these are to be found in various counties it is of consequence to consider the question separate from the heavy lands. Upon dry soils of any description adapted to root culture, and for feeding and fatting sheep in the winter months, we must have a rotation of cropping suitable to the requirements of the sheep as well as making provision for the cereal and pulse crops. We therefore recommend a course of cropping as follows:—1st, Wheat; 2nd, Fallow and green crops for roots; 3rd, Lent corn or part wheat; 4th, Clover, the red clover being alternated with peas, white Dutch and suckling, or sometimes hop clover and rye grass. In recommending this course it must be borne in mind that sometimes a field or two upon such farms consist of strong land, in which case these may be advantageously laid with grass for permanent pasture, in order that the course of cropping may not be disturbed upon the light and loamy land. The mode of cropping above referred to will keep the land clean with ordinary care in the tillage, because the fallowing for root crops where the land is not quite clean should be commenced by steam culture immediately after the wheat is harvested, and then in ordinary seasons the spring tillage will make the fallow complete, and in time for mangold, carrots, Swedes, turnips, &c. We further recommend that there should be no fatting sheep upon the farm from the first week in May until about the first week in September. The idea which we have always kept in view may then be carried out—viz., grow the food in summer and fatten the sheep in winter, and we know of no system whereby such an ample provision can be made as upon the rotation above stated. One-fourth will produce hay and pulse for the sheep; one-fourth part will produce roots, including mangolds; and in addition early turnips may be taken after a crop of hop, clover, and rye grass hay, as well as stubble turnips when the harvest is to be fed off early and followed by mangold.

Having set out the cropping capable of feeding a heavy flock of fatting sheep we must refer to the purchase. Either all tegs may be bought of two qualities, or tegs and wether sheep; for it is desirable to have our sheep fit for sale at different periods, in order that their numbers may be adjusted at certain periods to the quantity of food or other contingencies. There is no better time to buy half the stock required than the latter part of August or the early part of September. If we purchase at that time lambs of the same season in high condition they will be the first ready for the butcher, and the earliest of these lambs are generally in forward condition, and well adapted for consuming the earliest and best provision, whether of grass or roots. In the autumn there will be the early turnips, with a change for the sheep into the young clover seeds, and at the end of the month of September and early in October the mangolds if required; some of them may be fed, the remainder stored in heaps and earthed over to be fed in the field in March or April. With reference to the feeding of mangold in the September month we have known (in spite of the prejudice existing against early feeding) the crop taken as an alternation with turnips, and fed off in the same way with hay, cotton cake, or beans, the roots being pulled and left on the ground several weeks before using, and this we have seen answer excellently, the sheep doing better than upon early turnips, &c. In feeding and fatting sheep upon mangolds there is, however, always a greater risk of disease by the stoppage of urine, to which they are liable when they get nearly fat enough for sale, and our sheep have never suffered so severely as they have from feeding on mangold, whether used early or late. This is accounted for by a deposit of globules of sugar in the urinary passages and the kidneys, as ascertained by post-mortem examination; and the worst part of this matter is that the sheep cannot be cured, and unless they are sent away for slaughter directly they show the first symptoms, the flesh becomes impregnated with urine, and cannot be sold as human food.

When lambs in good condition are bought the last week in August or first week in September they may be immediately shorn with advantage, for we have known not only Hampshire downs, but any of the long-woolled sheep, and especially the cross-breds, including also the Oxford and Shropshire downs, afford a fleece of wool which has realised from 7*s.* to 9*s.* per head, the wool being taken and sold in the grease without washing the lambs. The result of this practice we have noticed for many years has been that when shorn the sheep make mutton faster, and notwithstanding that the wool has been taken, the shorn ones when kept side by side with those in the wool they have made from 5*s.* to 7*s.* per head more money, and are often bought as wether sheep by the butcher. The later-purchased sheep may be held on and sold in the spring after being washed and shorn just before going to market; thus the home farmer may to his own advantage take not only the wool of the sheep sold in the spring, which is usual, but he may also take the wool for sale in the autumn, and thus secure all the profit of wool as well as mutton. Autumn shearing may be a new idea to some young men, but let them try the experiment.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Where steam power is available on the home farm, both for ploughing and cultivating, the tillage of the land for the various crops may always be ready or nearly so at the time appointed for seeding the land. In the same way where steam cultivating tackle can be hired the ordinary horse power of the farm may be supplemented; and there need be no arrears of work, because steam power when properly applied at the right time not only effectually cultivates the land, but so much is done in a little time in favourable weather that it safeguards the seasons for sowing and seeding. There is, however, one matter connected with the horse labour which should have due consideration—that is, the size, strength, and activity of the horses, and this point is of the greatest importance, and should be well considered previous to making any arrangements for breeding and rearing horses for use upon the farm. There are many reasons why this should receive due attention, because we must view the horse labour upon the farm to a certain extent as an adjunct to steam power; therefore, horses of sufficient power for each to turn a furrow in the work of ploughing should be kept—that is to say, two horses only should be used for the double-furrow plough. It is, however, only animals of 16½ or 17 hands high which are capable of this work as their daily labour, and then they must be well fed and kept in good condition, so that they may throw their weight into the collar, in which case the heaviest animals get through the work with the greatest ease and celerity. Now this matter rightly considered is the best economy, because when two horses do the work of three ordinary farm horses the advantages are various, there being only two to feed instead of three, and only two lives at stake instead of three, only two to harness, shoe, &c., instead of three, and fewer men and boys will be required in attendance upon them daily. We are induced to make these remarks as the time is at hand when mares are usually served for breeding, and it is extremely important that a first-class entire horse should be selected. Our approved breed and type is the Clydesdale, and it is often made a question of cost for the service of the horse; but there are more good horses of the best stamp for service now in the different districts than there have been previously, particularly in the midland and northern counties, and it is certainly not worth while to reject the services of a valuable horse in consequence of a few extra pounds or shillings, as the foals will always repay any extra charge when the sire is a first-class horse. We must, however, not forget the mare, and be sure to breed from those which are large, upstanding, of good constitution, and active, for both

parents being of the right sort is the only security for obtaining the most valuable succession of working horses upon the home farm, and as we cannot always purchase good animals when wanted it shews the good policy of breeding such as we require.

The drilling of mangold and carrot seed will be continued, this being the best season. The carrot seed should be prepared for drilling by women, who hand-rub the seed until the burr is separated from the seed, and when winnowed the seed will drill as readily as mangold or Swede seed. Carrot seed is often mixed with ashes, &c., for drilling, but we have never secured so regular a plant as when the seed was properly rubbed free of the burr. Upon a good sandy loam soil carrots will bear later sowing than mangold; we have on certain occasions secured very heavy crops, the seed being drilled on the flat as late as the 20th of May, and in late sowing it is far less cost to hoe and clean the crop, because the seeds start fair with the weeds and grow faster than when sown early. This plan saves one hoeing at least and often the crop, for we have known early-sown carrots so encumbered with weeds that they never could be hoed at all except at a ruinous cost, and have often seen them ploughed up and the land sown with Swedes or turnips. Since horses have been dearer, and within the last few years, for the odd work of the home farm it is well to select a good-sized Spanish or French mule. Many years ago we used them for horse-hoeing between the root crops, for which work they are specially adapted, as they have smaller feet than horses and do not tread so wide in work, and at all sorts of jobbing work on the farm. They are not only capable of drawing a good weight, but the day is never too long for them, nor are they subject to so many complaints as horses, and they are very long-lived—as a matter of fact, we have never seen a dead one!

Manual Labour.—This should now be employed in preparing manures for the root crops, and also the burning of ashes to mix with guano, superphosphate, and other manures. Ashes may be obtained from couch burnt in large heaps or from turves cut up at the sides of farm roads, as this work answers a double purpose—that of shaping the roads and furnishing materials for drilling. Some farmers still prefer to buy bones broken fine, mixed with sand, well wetted, and cast up in a conical heap. They soon become dry. They may then be watered and mixed like mortar the second time; after about a fortnight they will be fit for drilling with root seeds. The sand serves to distribute the manure instead of ashes, and as it becomes impregnated with ammonia in the heap it furnished a good manure; sand, also, being a maiden earth acts very favourably upon soils where root crops have been often repeated, besides which the young plants avail themselves of the sand at the earliest stages of growth.

Calves and young cattle will now require constant attention and although they may go out in the daytime after the 1st of May yet they should come in at night. The pens should be kept clean and pure, as foul air will produce diarrhœa. Earth, sand, or dry ashes strewed over the pens in addition to straw litter is good for the purpose of keeping the pens pure and comfortable.

GEESE.

We have lately been relating our experience in some of the more delicate races of poultry. We now come to the most hardy and robust of domesticated birds—the Goose. We do not profess to have any special personal knowledge of its treatment, but enough to enable us to recommend it to many who have not the requisite space, and do not care to bestow the attention which alone ensures the profit from most kinds of poultry. Wherever a bit of common or village green is accessible, there for the greater part of the year a few Geese will pick up most of their living. There are many inhabitants of villas and cottages on the edge of such ground which have no accommodation for fowls, but who could give up a rough shed to Geese, and would find them by no means unprofitable stock.

A real beginner in the breeding of most live stock requires a number of cautions, such are not needful for the would-be Goose fancier. A gander and a couple of Geese should be procured in the autumn; more Geese will seldom be necessary, for their eggs are, as a rule, very fertile, and they are excellent sitters. Where possible, Geese of three or four years old should be purchased, for they continue productive for many years, and old birds are better mothers than young ones. According to the old saying, "Good housewife's Geese lay by Candlemas-day," the common Goose begins to lay late in January or early in February. She will make her own nest of straw in the shed where she sleeps, and should be allowed to lay and sit there. She will not, like the Turkey, let herself be set anywhere. She lays from ten to fifteen eggs, sits diligently on them, and seldom fails to bring off a good brood.

During incubation, if she does not come off daily she should be lifted off and oats or meal given her and a pan of water. When hatching she should be interfered with as little as possible. It is best to remove the eggshells, for the unhatched eggs sometimes get inside them, and the goslings are unable to break the double shell. When the brood has been hatched twelve hours the mother should be removed to a large coop on short grass and fed with meal or grain, and the little things placed round her; in a secure place she may even be allowed at once to go completely at liberty It may not be out of place to give a warning that many ganders become ferocious when the Geese are hatching; we were once bitten in the face by a violent Chinese gander which rushed into the sitting house as we were stooping down to attend to a hatching Goose. Some trouble is saved if it be contrived for the Geese to hatch the same day; they will rear their flocks in common.

From the time that it is out of the shell the gosling requires very little attention. We thought that our first brood would inevitably be starved, yet they throve apace. At first they hardly touch anything given to them, but just suck tender blades of grass. A little oatmeal may be thrown into a shallow drinking vessel of water; and a little food, mixed according to directions that we have given for all young poultry, will sometimes tempt them. If cooped at all the mother can be safely turned loose after ten days, and the rapid growth of the young stock will soon assure their owners of their health and contentment. Growing goslings should have a meal of soft food in the morning and of oats at night; the old birds will be quite content with the latter save in severe weather. This, of course, is supposing them to have a good grass range. We would strongly dissuade anyone from keeping Geese without it; in a confined poultry yard they are miserable and generally troublesome. Debarred from their natural food they become greedy and chase the fowls about. The goslings come in for the table as "green Geese" in the summer, and should be fine birds for the Michaelmas board. The mothers often lay a second time in April, and may be allowed to sit again.

There is little choice between the two best-known varieties—the pure white or Embden and the grey Toulouse. Both breeds have of late been got up to enormous size and weight. The exhibition and judging of Geese and Ducks, too, is in our opinion very unsatisfactory; all goes by weight, and hence birds are fatted up to a state of obesity in which they will not reproduce their kind. For this reason we do not advise the purchase of exhibition or very large Geese. Buy finely-grown birds of pure strain, and be content with 15 lbs. weight for a Goose and 20 lbs. for a gander. Pairs of adults have been shown at Birmingham weighing 60 lbs., and of goslings not much under 50 lbs.!

We have a great partiality for Chinese Geese, both the white and grey varieties. They are a much more ornamental though much smaller race than ordinary Geese. No one would think of keeping Embden or Toulouse Geese for ornament, but the Chinese are a beautiful addition to the feathered tribe on a lake. Their weight when full grown is about 12 lbs. the gander and 10 lbs. the Goose, though the white variety is sometimes heavier. Both kinds have long, elegantly curved, and Swan-like necks, the white bright orange bills with high knobs at the base, the grey black bills with similar excrescences on them.

They are wonderful layers, often beginning to lay in November, and continuing to do so almost daily till the spring. Their fine eggs all this while are of great use and value in the kitchen, when there is a general dearth of such articles. They incubate nearly five weeks, that is about five days longer than the ordinary Goose. We have hatched many of them under hens, and strange to say, though they came out many days before their due time, the goslings never seemed the weaker for this. The parent birds invariably found them out when with hens, and decoyed them away at two or three weeks old. Their flesh is excellent and highly flavoured, as superior to that of common Geese as that of the wild Duck is to that of the tame Duck. We have heard of their being successfully crossed with the Toulouse. The soft subdued brown and grey hues of the coloured variety with delicate darker lines are very beautiful. The goslings of both varieties in their early days are attractive little creatures, but those of the white are the very prettiest of all young waterfowl we have ever seen. Chinese Geese have their drawbacks like other birds; they are very noisy, though excellent guards. We firmly believe that they must have been the breed which saved the Roman capitol. We certainly know a modern instance in which a large flock of them raised such appalling shrieks in an echoing-roofed building that they entirely frightened away some thieves from a model poultry establishment. We started them ourselves as guards for an outlying colony of poultry, but must confess that their harsh grating voices in the day are very irritating. They swim more than the larger Geese, but eat less grass, and we found our flock troublesome about robbing the Turkeys and other poultry of their food. This was, however, where there was hardly any water for them. We have seen them lead a much more quiescent and contented life on lakes and ornamental ponds, and strongly recommend them for such places. The grey variety is commonly, and in the old poultry books, called Spanish Geese. Why we cannot guess. The fact is worth mentioning, lest the two names should be thought to designate two different species.—C.

POULTRY EXPERIENCES.

I started last year with eight hens, thirty-six pullets, and four cocks, rearing 112 chickens out of 180, and booking eggs monthly as follows—475, 563, 387, 437, 411, 287, 204, 245, 164, 74, 102, 229, making a total of 3528. This year, with two pullets more, the

eggs for January were 441, and for February 878, the greatest number in one day being 27. This poor result as compared with that for the same months last year arises, doubtless, from the continuance and severity of this winter's cold, which has checked the pullets in their "first laughter." While last year the first sitting hens presented me with fifteen chickens on Valentine's day, this year in all February from four hens I had only four chickens out of six "spratched." Is this very expressive word peculiar to Yorkshire? The word "spratch" signifying a breaking forth, as curiously enough do most if not all words beginning with *spr*. It is of course treason to mention that mine is a cross-bred Brahma-Dorking, which I intend to cross again with both Houdan and Crêve-Cœur for the sake of hardiness and size of eggs, though so far results are satisfactory, as the pullets weigh up to 8½ lbs., and yield eggs which weigh seven to the pound.

As this is the season when ordinarily the novice is seized with the idea of commencing poultry-keeping with fresh eggs for breakfast and chicken salad for lunch looming in the near distance in spite of the allurements of celery, lentils, &c., I send sketches of a fowl house, a hen coop, and a corn bin, one or other of which may interest your readers.

The hexagonal hencoop (fig. 51) is drawn on quarter-inch scale, but a less size might possibly suffice for small breeds. A description of

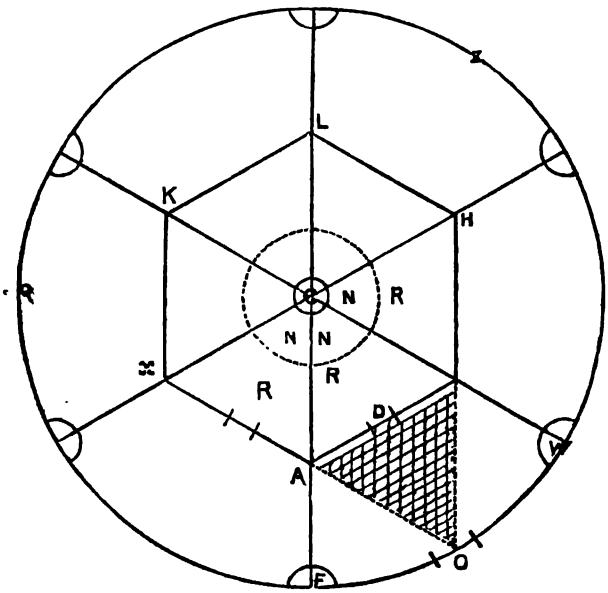


Fig. 51.

one side, F C W, will show the plan. N is the nest for the sitting hen, R the shelter for the chickens with a slide door at D; the rest of the side A B, which should at least be 15 inches high, being wired or boarded; or A B may be composed of two doors opening back on B W and A F. C A B is the roof, which might be felted; C a pole, which should rise well above the roof and have a weather-cock at the top, not more for ornament than to be a guide to know when to shelter the chickens from change of wind, &c. B W and A F are divisions between the runs. F Z Q is a ring wire fence, and the spaces F A O, W B O, are roofed with wire netting, leaving A O B as a wire door hinged to A B, which when open will rest on the sloping roof A C B. F and W are tins for food and water respectively, by which arrangement two hens can be supplied with food or water out of one tin. O is another door in ring fence to allow the brood to run out on the grass, by which plan each hen can be let out once a week. The coop, A B H L K X, may rest on the ground, or in hard weather on a false floor, but the nests should at any rate be made with boarded bottoms. The whole, if neatly constructed, would make an ornament on a lawn, where, in sight of the amateur's watchful eye, a chop of the wind to east or north, would make him put a felt shield to the ring fence where needed. The cost of the whole would be much less than that of six ordinary hencoops, while the coop would be foxproof and could readily be moved from place to place.

Can anyone give me a recipe for curing fowls which have diseased (spotted) livers?—G. B., *Tadcaster*.

[The fowl house is commodious and well arranged, and the corn bin is ingeniously made out of a French hardware cask, and answers its purpose admirably.—Eds.]

CANARY TREATMENT.—No. 4.

The actual architect in the construction of the nest is the Canary hen, although you may often notice a vast amount of fussy pretension on the part of the cock bird in the carrying about a sprig or two of moss and drawing the attention of his mate to some particular site which the cock invariably makes a right of choice of. When the pairing takes place the hen attracts her partner's attention with an oft-repeated piping chirp, especially on the approaching of the laying of her eggs. An interval of about a week, sometimes longer (much depends upon the temperature and state of the weather in early breeding time) elapses between the pairing and the laying of the first egg. Every morning afterwards nearly at the same hour an egg is laid, but the number of eggs deposited in each nest varies from two to six, and sometimes seven. Four or five is preferable to either number, and the young birds are reared much better than when there are more than five. During the thirteen days the hen sits much attention is paid her by the cock, and it is essential that a variety of good, wholesome, and nourishing food be supplied, so that the cock bird may feed the hen as much as possible during the period of incubation. Attention to this is an important matter, for if the weather be cold and there be but a scanty supply of food, and that, too, not of the choicest kind and easy of access, the eggs will soon get cold and become addled. Besides a mixture of canary, hemp, flax, rape, and millet seeds, supply some lettuce seed, which latter has a tendency to purge and assists in carrying off any ill humour the hen may have contracted during the previous winter. In the way of a dainty morsel give a little piece of cake or biscuit. It is surprising with what zest a caged-up Canary will partake of a treat of this description; it not only benefits the breeding birds, but makes them familiar with those who attend upon them during the breeding season.

In most instances I would prefer Nature taking its own course; still there are occasions when assistance may be rendered with advantage. Some hens will not sit beyond the thirteen days, others will sit three weeks or a month together on a stretch. Still I must admit that it weakens a hen to let her sit beyond the proper time. For experiment sake, and to try and hatch a nest of Belgian eggs (the Belgian hen having through some unknown cause forsaken her nest when she had laid four eggs), I placed them under a good hen of the Norwich breed which had been sitting twelve days—thus sacrificing her eggs—and succeeded in rearing three young Belgian birds out of the four eggs. The Norwich hen apparently appeared little the worse for the long time occupied in sitting. In most instances I would prefer letting the eggs remain in the nest, especially if the hen does not commence to sit before she has laid the third egg.

Some breeders accustom themselves to remove the egg each morning until the fourth is laid, substituting in the place ivory or wooden turned ones. The latter are best. Canaries' eggs differ somewhat in appearance. Some are of a sea-green colour throughout, others of a very pale blue tint entirely free from spots, whilst some are marked or streaked, especially on the crown of the eggs, with reddish brown or dark violet spots. Those of the Belgian breed are recognised by their more delicate and elongated shape. A practised breeder can, without much fear of breaking them, remove each egg with his thumb and finger, laying hold of them lengthways, and depositing the same either in fine sand or bran until the required number be replaced in the nest for sitting upon. The safest way for those not possessed of confidence is to take away the egg with a teaspoon. When the eggs have been sat upon seven or eight days it may be ascertained whether they are good, if so they will appear dull and filled with veins, while the bad eggs will appear quite clear if held in the sunshine or before a bright light. When they appear bad take them away and give the hen a few days' rest before again letting her go to nest. Sometimes the cock Canary will attempt to relieve his mate by clumsily sitting upon the eggs during the time she is away to feed or temporarily exercise herself, or have a splash in the fountain of water. If upon returning to her nest the cock does not quickly vacate the position, a fight takes place to the satisfaction of the hen, which very cosily settles herself down upon her precious charge.

In my last chapter I remarked upon the necessity of only supplying one nest basket or box at a time to a pair of birds breeding in a cage, owing to the hen sometimes carrying into one of the receptacles and sometimes to the other. Singular enough a case bearing out the remark has occurred to a pair of Canaries belonging to a friend of mine, a chemist in Derby, who informed me that he had a pair of Canaries up breeding with two nest boxes in the cage. He informed me that the hen had made a nest in one of the boxes, and in the other (an empty box) the same hen had deposited two eggs. I told him to take away the empty box and place the eggs in the one with the nest, in which he found two other eggs. The hen has since settled down to the nest. This only tends to prove that such casualties may be avoided by adopting a decided mode of treatment. Some hens are very whimsical and fastidious in their building and nesting operations. —George J. Barnesby.

VARIETIES.

Owing to the protracted cold the pastures as yet scarcely afford any food for stock, and consequently in those districts

where the root crops have been destroyed by frost, farmers are not only experiencing great inconvenience but are sustaining heavy losses. The sales of animals in recent fairs and markets in the north reveal the unpleasant fact that the prices obtained are not equal to the amounts that were paid for the same animals in October.

—— We are requested to announce that at the Brighton Show Mr. O. E. Cresswell will judge the poultry.

—— The Countess of Dartmouth wishes all applications for poultry or eggs from the Patshull yards to be addressed to herself at Patshull, Wolverhampton.

—— At the Council meeting of the Bath and West of England Society and Southern Counties Association, held on the 29th ult. at the Grand Hotel, Bristol, Sir T. D. Acland, Bart., M.P., in the chair, the draft programme for the Exeter meeting on June 2nd, 3rd, 4th, 5th, and 6th, was approved, the times of opening and closing the yard being fixed as usual for 9 A.M. and 6 P.M. respectively. Col. Luttrell on behalf of the deputation appointed to visit Worcester relative to holding the meeting in that city in 1880, reported that the deputation were most cordially received by the inhabitants of Worcester; that an admirable site for the show yard and trial fields had been inspected and approved; and that the Society's requirements had been signed by the Mayor of Worcester on behalf of the Local Committee and citizens.

—— In Messrs. Cassell, Petter, & Galpin's parcel of monthlies we find Part 1 of a new and revised edition of "The Book of the Horse," by S. Sidney. This reissue, we are informed, has undergone such extensive revision as to render it virtually a new work, much of the matter having been entirely rewritten. This part contains an excellent coloured portrait of Lord Calthorpe's entire pony hack Don Carlos, and the work is otherwise very copiously and artistically illustrated. We have also before us Part 31 of the "Illustrated Book of Poultry," with Mr. Unsworth's White-crested Black Polish as the illustration; but we miss the number of the "Canary Book."

BAR-FRAME HIVES.

Mr. Watkins's objections (page 336) to closed end and taper-shaped frames are also mine. I further object to them because the closed ends to a large extent destroy their mobility. The squared Woodbury frame made of ⅞-inch wood is what I use. I never found a nail give way, and they can be made more easily and cheaply and true. They can be fitted with sections tightly fitting, which the taper frames cannot.

Mr. Watkins refers to the doubling principle as if a *sine quâ non*. With hives of the capacity of mine, holding sixteen frames, there is no necessity for doubling. A tier of sections may be placed over the ten brood frames, and leave other six free for extracting if desired. If no extracting is desired the whole top, 24 by 16 inches, can be covered with sections, one tier of which is amply sufficient. I have adopted the Woodbury frame in conjunction with plenty of room for lateral extension in preference to any larger and less easily handled frame, and hitherto I have seen no reason to regret having done so. Having the frame ends hung on a rabbet presupposes a single-sided hive, which in such a winter as we have passed through has been clearly proved inferior to those with double sides. In these the frame ends rest on the inner skin, and may be made as long, for convenience of handling, as the maker may desire. My roofs slope entirely from front to back, are made of six pieces of half-inch wood, and have plenty of super room beneath.—William Raitt, *Blairgowrie.*

QUEENS SELECTING CELLS.

Few bee-keepers can be unaware that the queen in ovipositing selects the smaller or worker cells, when the condition of the colony or its surrounding circumstances are such as to prevent swarming at the present or in the not far distant future. In bar-frame hives patches of worker brood contiguous to or even almost surrounding empty drone cells are at certain seasons continually under observation, while at other times in these same stocks the queens, little heeding the loss of honey to the master, seem especially bent upon raising troops of sons which may perchance perpetuate the race. The idea that some have advanced that the sex of the bee developed depends upon the action of the cell-wall in compressing and not the abdomen of the mother, is rather a blind guess than a theory, which a little careful observation should have scattered to the winds even before it was enunciated. The mother *selects* her cells; and her anxiety to produce drones when the bee-master has determined otherwise sometimes leads to the discomfiture of the latter; for if drone cells be carefully excluded by obliging the bees to work entirely upon comb foundations, or by rejecting at the time of transferring all comb not of worker size, much ingenuity will be required to obtain a super which the queen does not enter and spoil. If she be not mechanically excluded the super will indeed be taken to as soon as put on and fairly settled, but it will be by a small swarm in the centre of which is the queen, and drone-breeding will be started forthwith. This warning is not, now that comb foundations are becoming so common, needless. I have just met with a curious illustration of the instinct to which I have already referred. Receiving on Thursday last a stock in a skep of rather small size, which had suffered the gentle attentions of railway porters until two of its centre combs were broken out, I transferred at once all the brood (no drone eggs were set) into three frames, filled up the hive with comb, and fed liberally. The bees set to work with tremendous energy, and the tapes on Saturday were removed. This morning the first two combs carried few bees, on the third were many and several eggs; fourth, fifth, and sixth the transferred brood thick with bees, but on neither was the queen seen; seventh comb like the third, but no queen; eighth comb, few bees and little store; ninth comb, perhaps a dozen bees, no store; tenth and last comb, about forty bees at the back corner of the frame where was a small patch of drone cells. Behold here the queen diving her head characteristically into these cells, in each of which was an egg. The queen had left the main body and, attended by a few youngsters, had ventured to the last comb to be rewarded by meeting the object of her quest. The fate of an adopted super over a prosperous hive without drone cells and without mechanical exclusion of the queen is in no way uncertain. If our purposes need the thwarting of an instinct we must thwart it at all points, or ours will not be the victory.—F. Cheshire, *Avenue House, Acton, W.*

TRANSFERRING BEES.

I had a visit the other day from a neighbour who has just started bee-keeping by the purchase of a strong hive in a common skep. He is full of enthusiasm, as most commencing bee-keepers are, and as all ought to be. A sale of apiarian materials in the neighbouring town of Weston-super-Mare had just occurred opportunely for his purposes, and he had there picked up a capital bar-framed hive all ready for use. The object of his visit was to get from me an opinion as to when it would be best to transfer his bees from their old skep with all its inconveniences to the splendid modern bee hive of which he was the proud possessor, with all its facilities for improved and perfected management of bees.

It occurred to me that now is the time when the like question presents itself to many young bee-keepers, and that the answer I gave him may be useful to many others. So I give it here for the public good.

First of all, having ascertained from him that his newly-acquired stock was in first-rate working order, with a population so numerous that he expected it would swarm early, I advised him to postpone all thoughts of transferring the bees for the present. To do so when a hive is full of bees and brood is a most risky proceeding, and would most likely result in the failure of the hive for the current year so far as any profitable increase is concerned. In the hands of an expert possibly it might be done. Our late friend Mr. Woodbury would have succeeded doubtlessly, with his wonderful fertility of resources and the calm and self-possessed way in which he used to set to work. By all means let the bees swarm naturally, if there is only one hive in the apiary and if the bee-owner is at home or at hand to attend to his bees whenever they happen to swarm; artificially, by driving at any time most convenient to himself when he has reason to believe they are nearly ready to swarm, if circumstances compel him to be much absent from home. In both cases it is better policy to put the swarm in a new place—I mean where there is only one hive in the apiary, because in this way only can a fair equalisation of population and the absolute safety of both hives be secured. The case is different where there is more than one hive in possession, about which I may have something to say at another time.

I advise, then, that the first swarm be taken and established without transfer. Let it be put into a bar-framed hive (as in my friend's case), or into whatever other domicile may suit its owner. The transfer I recommend to be made at the earliest when the second swarm issues, as it will do in most cases and in ordinary seasons about nine days after the issue of the first swarm. If the second swarm should delay its issue for a few days so much the better; anyhow, let it be hived in some temporary hive for not more than twenty-four hours, and be put in place of the parent skep. This is now of importance with a view to attracting to it as many bees as possible, so as to denude the skep in order to facilitate the subsequent work of transfer. The skep itself, after the issue and capture of the second swarm, had better be placed under cover of a thick bush not far off, so that any bees who may happen to quit it in the interval before operations of transfer begin may rejoin their companions.

As soon as convenient after the hiving of the swarm (which should immediately be placed on the old skep's stand), let the parent hive be taken in hand. Every comb should be very carefully extracted, so as to be as little injured and as large as possible. I would sweep off each comb as I extracted it any odd bees back among their friends, and when all the combs were taken out I would so arrange the skep near the swarm that they might crawl

up and rejoin their companions. Leaving them so, attention should be given to the extracted combs, which with a little ingenuity and by paring off extremities should be pretty accurately fitted into the frames. To keep them in their places either narrow strips of wood should be tacked lightly on each side, or pieces of thread or fine wire tied round them. These should be removed later on. Take care to arrange the combs in the same position as they were built in the hive—that is, with the cells inclining upwards. When all is arranged in proper order, and the frames judiciously placed in the new hive, nothing remains to be done but to put it on the stand temporarily occupied by the new swarm, setting the bees over it, or dashing them down upon it. When they have all gone down the top board or quilt can be put on and all made snug. If necessary, feed the bees liberally for a few days. Should any quantity of royal cells be found in the process of transfer it would be advisable to cut them out.—B. & W.

THE FERTILE WORKER.—No. 2.

PROPOSITION No. 12 of the Dzierzon theory reads thus :—"As some unfecundated queens occasionally lay drone eggs, so also in queenless colonies, no longer having the requisite means of rearing a queen, common workers are sometimes found that lay eggs from which only drones proceed. These workers are likewise unfecundated, and the eggs are uniformly laid by some individual bee, regarded and treated more or less by her companions as their queen."

The Baron Von Berlepsch in reviewing this proposition says—1st, "In queenless colonies workers sometimes occur which lay drone eggs." This is now fully admitted by all intelligent apiarians. 2nd, "But drone egg-laying workers are found only in colonies which no longer possess the requisite means of rearing a queen." The Baron goes on to say there may be some exceptional cases, and that in colonies which have no queen but have worker eggs, unsealed brood, or larvæ in royal cells, no drone eggs are laid. I think it may be possible that varieties of the honey bee may differ in their power to produce fertile workers; climate again may exercise an influence. I can testify from numerous experiences that the North African variety has that power developed to a great extent.

One of the Baron's exceptional cases occurred with me thus: On the 25th of March this year I deprived a strong colony of all their own brood and queen, giving them empty frames of comb to group upon, inserting in their midst one single frame of eggs and brood taken from an Italian colony wherefrom I desired to raise some Italian queens. Five days later I examined and found plenty of queen cells in progress, but not having then read of the advisability of destroying all queen cells found capped on the fifth day I left the cells as I found them. Upon the ninth day I proceeded to cut out the finest and ripest queen cells for nuclei. In doing so I saw some fresh eggs; examining further I found plenty of them, and at once came to the conclusion that a fertile worker was already at work, for many cells contained five, six, and even more eggs, which I have come to regard as an unmistakeable proof of the presence of a fertile worker. These eggs lay in the cells anyhow, lying one upon another; and of those cells that contained a single egg, it was noticeable that often that eggs lay on the lower side of the cell, and were not affixed to the base of the cell as we see our good queens place her eggs.

As there were several ripe queen cells, fearing the fertile worker would destroy those I left in the hive, I covered some with a small cage, others I left free. In the cage queens emerged, but the bees did not feed them and allowed them to die. On the thirteenth day I was watching the bees at the door of this hive when I saw an agitated group draw something out, which proved to be an Italian princess just alive, dying in a few hours afterwards. On the fourteenth day I found an Italian princess dead on the floorboard. On the fifteenth day another lay dead on the alighting board.

During these days I had repeatedly examined, I may say, every bee in the hive, but no actual fully developed queen could I find. I came across one black bee so long in the body, moved so slowly, and was so fat that I judged her the pest, but before I could grasp her she eluded me, and I have not been able to find her since. Now here appears to be one of the exceptional cases of a fertile worker laying, what have since proved to be all drone eggs, in a colony with queens hatching out every day, and therefore possessing the requisite means of rearing a queen. The fertile worker destroying them as fast as born.

I have an idea this is an African variety fertile worker, and if it be so it would go to prove that the power to produce eggs was only latent up to the time I made the colony queenless, then finding herself in a hive and no queen, the desire to be up and doing brought forth the latent power. The mode of determining this point will be by observing whether the resultant drones are of the African or Italian variety. Allowing twenty-four days for the drones to issue, the 28th of April I hope to see the point resolved. If the drones prove to be Italians then this experience would uphold the late-fed-larvæ theory, while, if Africans, the latent power theory.—ARTHUR TODD, *Algeria.*

OUR LETTER BOX.

COCKS RUNNING WITH HENS (*C. M. C.*).—Two cocks in the same yard will fight unless there are hens proportionate to each. The proper number is five hens to each cock. There is no reason for preventing the cocks running with the hens during the non-breeding season.

RED-FACED WHITE SPANISH MINORCA FOWLS.—*H. A. G. S.* and others require eggs of these varieties; if advertised many might be sold.

FOWL'S PLUMAGE SOILED (*Amateur, Wales*).—You may wash your fowls with a flannel dipped in tepid water and soaped. You must be careful to wipe the feathers downwards and smoothly without ruffling them. On examination you will see it is only the outside of the plumage that is dirty. The inside is always clean. After the washing is done wipe the feathers carefully with a clean flannel, removing all the soap. When clean put the bird or birds in an open basket before the fire. Let them have dry straw to stand on, and keep them there till they are dry.

GEESE UNFERTILE (*Inquirer*).—We think six Geese too many to put to a gander, but do not attribute the failure in this instance to the fact. We believe the bird is unfitted for his post. It is not an uncommon case with aquatic birds. When a male of any kind of poultry has too many partners, he selects a few to which he devotes himself; but he is not content with neglecting the others, he generally beats and often kills them. In your case we should think he neglected all. We advise you to try another gander, and it is hardly now too late if you get it at once. We do not think you will ever have goslings from the bird you have.

STEWARTON HIVE (*A Constant Reader*).—According to this system a prime swarm is hived in two boxes with all communications open between, but with the slides closed in the upper box, and some eight or ten days after a second prime swarm if it can be got is hived in the third breeding-box and set under the other two. You must close the door of the now middle box, and an open and free communication must be allowed between all three boxes. The union is effected at night time. The two queens fight it out between themselves. Of course, the frames are all in their places in the hives before the bees are hived therein, with or without guide combs, as the master chooses. You may paint with any colour you please. Our own hives are painted with jet black varnish, which dries quickly and is cheap and durable. You may use any cover you like which is effective; ordinary ingenuity would soon find available material. But if you wish to do the thing neatly and thoroughly you cannot do better than adopt the sort of cover which the "RENFREWSHIRE BEE-KEEPER" has himself used and described as follows:—"They are formed of three-quarter-inch wood 26 inches high by 18 inches wide, inside measurement, dovetailed at corners. They rest on without being attached to mahogany floorboards, kept in position by a moulding round the base. Some are of square, some of octagon form. The tops are detachable, and covered with thin zinc to keep them watertight at the joints, and are well ventilated and painted."

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. April and May.	Barometer at 32° and Sea Level.	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 30	30.241	50.2	45.3	N.E.	46.3	56.6	38.7	109.4	34.8	—
Th. 1	30.143	45.3	39.8	N.	46.2	52.8	37.8	94.2	35.6	—
Fri. 2	30.302	46.0	40.2	N.	45.6	54.3	34.0	107.2	31.0	—
Sat. 3	30.447	44.6	40.1	N.	45.0	58.5	33.0	112.8	27.3	—
Sun. 4	30.516	46.0	41.3	N.	46.8	60.4	31.4	111.5	28.5	—
Mo. 5	30.507	55.2	46.6	E.	47.6	67.7	36.7	118.6	29.4	0.190
Tu. 6	30.099	42.2	41.6	N.	49.7	53.3	42.4	100.2	36.2	0.010
Means	30.322	47.1	42.1		46.7	57.6	36.8	107.7	31.4	0.200

REMARKS.

30th.—Fine bright morning; afternoon dull, with slight sprinkling of rain; damp evening.

May 1st.—Fine morning; rather cloudy in afternoon, with few spots of rain.

2nd.—Cool and dull, but very clear and fine after 5 P.M.; bright moonlight night.

3rd.—Very fine sunny day throughout; moonlight night.

4th.—Bright and sunny, with almost cloudless sky; bright moonlight night.

5th.—Another bright day, with very hot sun; close and misty in evening.

6th.—Wet morning, very dark for a short time at 9 A.M., fine day afterwards but at times cloudy; windy in afternoon and evening.

A dry week with northerly winds, and very cold cloudless nights.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 7.

THE improvement in trade still continues, the better class of goods being in good demand and prices well maintained.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	2	0	to	6	0	Melons	each	0	0	to	0	0
Apricots	dozen	0	0		0	0	Nectarines	dozen	0	0		0	0
Cherries	℔ lb	0	0		0	0	Oranges	℔ 100	4	0		12	0
Chestnuts	bushel	12	0		16	0	Peaches	dozen	0	0		0	0
Currants	½ sieve	0	0		0	0	Pears, kitchen	dozen	0	0		0	0
Black	½ sieve	0	0		0	0	dessert	dozen	0	0		0	0
Figs	dozen	12	0		18	0	Pine Apples	℔ lb	2	0		4	0
Filberts	℔ lb.	0	9		1	0	Plums	½ sieve	0	0		0	0
Cobs	℔ lb	0	9		1	0	Raspberries	℔ lb.	0	0		0	0
Gooseberries	quart	0	0		0	0	Strawberries	℔ oz.	0	6		1	0
Grapes, hothouse	℔ lb	3	0		8	0	Walnuts	bushel	0	0		0	0
Lemons	℔ 100	4	0		8	0	ditto	℔ 100	0	0		0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 15—21, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
15	TH	Royal Society at 8.30 P.M. Royal Hort. Soc. of Ire-	64.8	40.7	52.7	4 10	7 42	1 46	1 56	24	3 51	135
16	F	Royal Institution at 8 P.M. [land (Spring Show).	66.0	42.2	54.1	4 9	7 43	1 59	3 4	25	3 51	136
17	S		65.7	41.0	53.4	4 8	7 45	2 12	4 12	26	3 50	137
18	SUN	ROGATION SUNDAY.	66.2	42.2	54.2	4 6	7 46	2 26	5 22	27	3 48	138
19	M		67.0	42.7	54.9	4 5	7 48	2 45	6 31	28	3 45	139
20	TU	Zoological Society at 8.30 P.M.	66.9	42.4	55.2	4 3	7 49	3 6	7 40	29	3 42	140
21	W	Royal Botanic Society—First Summer Show.	66.3	44.7	55.5	4 2	7 51	3 35	8 45	●	3 39	141

From observations taken near London during forty-three years, the average day temperature of the week is 61.1°; and its night temperature 42.3°.

TWELVE HARDY FLOWERS OF THE MONTH.

MAY.

IN making a collection of hardy herbaceous plants the chief embarrassment is what to exclude, there being so very few that are altogether unworthy of cultivation could room be found for them. Some in beginning a collection fill up their available ground at once with whatever plants they can obtain, and comfort themselves with the resolution that they will weed out those that are inferior as better sorts come to hand. But this weeding-out process is seldom well done. If the plants are kept until they have become familiar objects in the garden we cannot with any amount of cheerfulness send them all to the rubbish heap; one of each must be kept, and the result is that by-and-by they are overcrowded.

It is purposed in this and the following papers to give during each of the summer and autumn months a selection of twelve good herbaceous plants usually flowering at that time. I do not say these will be the *best*, for the application of that term to flowers is obviously a matter of taste. As the notes will be chiefly serviceable to amateurs and cultivators of small gardens, all plants of doubtful hardiness or difficult of cultivation will be excluded whatever be their merits. We have learned some severe lessons during the past winter, and there are few trade lists that do not require revision with respect to the hardiness of the plants included in them. In many cases they need it to make them applicable even to the southern counties of England; and if that be so, how much more do they require the scissors before being sent into our bleak Scotland as garden guides. Even the most reliable of them err, unwittingly no doubt, too often on the sanguine side. Although a plant should be able to live without sustaining deadly injury through many hard winters in a well-sheltered nursery surrounded with close Beech or Holly hedges, it does not follow that it may safely be described as hardy. Much disappointment would be prevented were such plants as Tricyrtis hirta and Chrysobactron Hookeri either expunged altogether or qualified by some note of warning, for hardy in the common acceptation of the word they certainly are not.

The present month is emphatically the month of flowers. So sings Leigh Hunt—

> "Month of bees and month of flowers,
> Month of blossom-laden bowers.
>
> . . . . .
>
> O thou merry month complete!
> May, thy very name is sweet.
> *May* was *maid* in olden times,
> And is still in Scottish rhymes;
> May 's the blooming Hawthorn bough,
> May 's the month that 's laughing now;"

and there is a freshness in May flowers that seems wanting in those of the other months.

Aquilegia glandulosa.—Of late years the Columbines have been universally productive of new varieties, many of them flowers of sterling merit, but it is doubtful if any of them surpass this old favourite. It is a dwarf-growing species seldom exceeding 10 or 12 inches in height, and forming when not in flower a round dense tuft of much-divided leaves. The flowers, which are borne for the most part singly, are large in proportion to the size of the leaves, being generally about 3 inches in diameter. The petals are dead white shaded with blue at the base, and the very conspicuous sepals are a bright blue. Its spurs are short as compared with those of some other sorts. There are a number of varieties, some of them differing little from the type; the best of these is A. glandulosa Grigori, raised some thirty years ago by Mr. Grigor of Forres. It differs from the species in being larger in all its parts, the sepals of a deep ultramarine blue, and the petals of a pure white with a very distinct blue spot at the base of each. It can be propagated to a limited extent by division during the growing season, but the quickest way of getting up a stock is by sowing new seed in light loamy soil. If year-old seed be used only a small portion of it will germinate the first season. Any light porous soil suits it if not too dry, and it also does well in peat. A native of Siberia and the Altai Mountains.

Dodecatheon Meadia (the American Cowslip).—A North American plant allied to the Primrose, but with flowers not unlike those of the Cyclamen. The leaves appear early in spring, and are oblong and stalkless. The rosy-purple flowers are produced in umbels on stems 10 to 15 inches in height. The best varieties are albiflorum, pure white; elegans giganteum, dark rose, very robust, the flower stems rising 18 inches; and lilacinum, with light lilac flowers. Propagated by division, or preferably by seed, which is easily obtained.

Gentiana acaulis.—This is the well-known Gentianella seen in so many gardens, where it is employed as an edging plant. It delights in a moist but well-drained soil, and the ground should be trodden hard on the surface where it is planted. The great upright tubular flowers are nearly twice the height of the little cushions of shining leaves from which they spring, and are of a brilliant blue, spotted inside. Easily multiplied by division in spring.

Trollius asiaticus (the Asiatic Globe-flower).—The common yellow Globe-flower (T. europæus) is well known in gardens, and in Scotland it is found wild in many localities where it is called the Luckan-gowan; "luckan" being Scottice for to heart like a Cabbage. The Asiatic species is a much more ornamental flower, but scarcely so robust. Its Aconite-like leaves are larger and of a lighter green, and its deep yellow flowers expand fully and do not retain the globular form that has given the other its name. It grows about 18 inches high, and likes rich moist soil. I have never known it to ripen seeds, but it can be divided in spring.

Corydalis nobilis.—A very interesting and beautiful plant with tuberous roots and elegant Fern-like leaves. It has racemes of bright yellow flowers on stalks about a foot high. Unlike the better-known C. lutea, its season of flowering is only brief, but it is well worth a place in every collection. It prefers a slightly shaded border and good deep soil, and should not be frequently disturbed.

Dielytra eximia.—This is no brilliant plant, but there is a quiet graceful attractiveness about it which many brighter plants want, and which makes it not easily passed over. Like all the Fumeworts, it has elegantly cut leaves. Its drooping racemes of reddish-purple flowers are borne on leafless stalks, which in good soil reach a height of sometimes over 18 inches. Though it does well in the open border, it is also most suitable for growing in shady places, and can be naturalised in open woods with good effect. Native of North America.

Caltha palustris fl.-pl.—The Marsh Marigold which ornaments the meadows and brook banks at this season is itself a very attractive plant, but its double form is much more so. It grows more compact, forming shapely masses of dark green kidney-shaped leaves and rich golden flowers double as those of the French Marigold. Though a moisture-loving plant it does well in an ordinary border, where it will flower until the end of June. As it does not produce seed it can only be propagated by division.

Ranunculus aconitifolius fl.-pl.—A good old-fashioned flower, and one of several which are known everywhere by the name of Bachelor's Buttons. How they acquired the name no one knows, but in the older and simpler times love-sick swains are said to have stuffed their pockets with Bachelor's Buttons, and according to the length of time these remained in a fresh state did they judge of the strength or otherwise of their lady-love's affection. So Shakespeare makes mine merry host of "The Garter" say, when the too numerous claims to the heart and hand of "Sweet Anne Page" were being discussed, "What say you to young Master Fenton? He capers, he dances, he has eyes of youth; he writes verses, he speaks holyday, he smells April and May: he will carry 't; he will carry 't; 'tis in his buttons; he will carry 't." The flowers are densely double and pure white, and it has dark green palmate leaves. In rich moist soil it flowers very profusely.

Saxifraga ceratophylla (the Horn-leaved Saxifrage).—There is a great sameness in the flowers of the numerous species constituting the Moss-leaved section of Saxifrages. The prevailing colour is a dull white tinged with green, but in this species we have a notable exception. It bears rich panicles of pure white flowers in such profusion as almost to hide the entire plant. The leaves are three-cleft, smooth, and hard, and form large and compact cushions 8 to 10 inches high. Its flowers are valuable for cutting, and it is very suitable for the front lines of herbaceous borders or for rockwork. Native of Spain.

Papaver orientale (the Oriental Poppy).—This is without doubt the gaudiest and most showy of all our hardy herbaceous plants. It has long, rough, pinnated leaves; and on bare stalks, sometimes more than 3 feet in height, are set singly the great flaunting flowers, each 6 or 7 inches in diameter. Their colour is a light scarlet, with a large spot of dark purple near the base of each petal. There was once and may be still a double variety of this, though I have never seen it. Hanbury, who wrote two ponderous volumes in 1770, wonderful alike for their great size and great dryness, mentions it as being then in cultivation. A native of Armenia, and propagated by offshoots and seed.

Pæonia tenuifolia fl.-pl.—Very unlike any of the other Pæonies is this handsome variety. It has fine, much-divided, Fennel-like foliage, which with its very double crimson flowers give it a most distinct appearance. Though perfectly hardy when in a dormant state, its early shoots are sometimes nipped by spring frosts, so that some little protection is then needed. The single form, of which this is a variety, is said to be a native of Siberia.

Lychnis fulgens.—Towards the end of the month this, one of the finest species of a very ornamental family, will be in bloom. It grows from 12 to 18 inches high. The leaves are greyish and downy, and the flowers are large and of a bright vermilion scarlet. Though a true perennial the plants are often not long-lived unless they be carefully divided or renewed by cuttings every two or three years, especially in heavy damp soils.—R. D. TAYLOR.

HARDY LILIES.—It may be of interest to "WYLD SAVAGE" to hear that in several gardens in the neighbourhood of Cobham, Surrey, Lilies of various sorts—auratum amongst them—do remarkably well planted out amongst dwarf American plants quite out of the shade of trees, in mixed peat and garden soil. In the autumn the heads rise considerably above the American plants, so enjoy full sunshine, whilst their roots are protected from it. In my own garden they were lovely last autumn, and are all coming up again strongly; scarcely any have been killed by the cold.—MRS. RADCLIFFE, *Cobham.*

THINNING FRUIT.

THE season is at hand when it is to be hoped that much of this work will need doing, and the temptation to be "greedy" must be strongly resisted if the best results are to follow. The bulk of Grapes indoors will soon be ready for thinning, and the previous capabilities and condition of the Vines should be the guiding rule for thinning the fruit. Supposing a Vine to have perfected twelve bunches last season the same number may, as a rule, be left on this season, but where the crop was not finished thoroughly or showed the least sign of being excessive do not fail to make it lighter this time.

A good top-dressing may have been given the roots, and it may be thought this will make up for the deficiencies of last year, but do not risk this. Rather make the crop lighter, and if the general condition is improved let it be proved this season, then leave a heavier crop next year.

In thinning the bunches the very smallest may be cut off before flowering, and the others should be gradually reduced until the berries are large enough to thin, when all bunches not required should be removed, as it is a waste of time to thin the berries and then cut the bunches off afterwards.

No definite rule for cropping Vines can be given, as it is always much safer to judge from the strength and age of the Vine and from the previous crop. I only know of one mistake which may be made on the side of a light crop—that is, not allowing the young Vines to bear fruit until they are three years old. This is done with the idea of throwing strength into the canes, but extra thick young Vine canes often prove more a failure than a success, as the ragged way in which they start into growth, and the small bunches they produce in proportion to the strength of the canes, testify. A moderately strong cane is the one to produce fruit freely, and in my opinion as soon as they are able to produce bunches they are able to bear them.

Acting on this principle I have frequently had young Vines bearing two bunches each the first year after planting, and I recommend others to try the same plan, only do not overcrop afterwards. A young Vine that perfects, say, two bunches the first year, may safely carry three the following year, but double this number would in all probability cripple the Vines for years. In the case of young Vines the crop should be increased annually by degrees, always remembering that three well-finished bunches are of more value than ten bad ones. Always leave the largest and best-formed bunches on the Vines when it can be conveniently done; only sometimes a few small ones have to be left, as, for instance, where the bunches may be large at the top of the rods and very small at the bottom, as is sometimes the case. It does not look well to cut off all the small bunches at the bottom, leaving the Vines bare of fruit there, and leaving the crop all at the top.

The first of the berries should be thinned as soon as they are the size of small peas, leaving the outermost berries so as not to reduce the size of the bunch. About a fortnight after the first thinning they should be looked over again, working on the same principle as before, thinning so that each berry may stand clear of the others. Crowding the berries spoils the bunches as much as leaving too many bunches injures the Vine. When it is seen that the berries are too close a few of them may be thinned out before colouring commences, but it is much better if they can be thinned sufficiently when small.

Peaches form another important crop for thinning. When thickly set, some of the fruit may be taken off immediately after it is formed. As in the case of Grapes the smallest should always be taken first, and when the trees are trained against trellises on walls those formed at the back of the shoots should be removed, leaving the crop all facing the sun and light. Double fruits should also be removed. At the first thinning every other fruit should be removed, and ultimately they should be left about 10 inches apart. They should not, however, be thinned quite so much as this until after the stones are hard, as some trees have a bad habit of dropping their fruit about this period, and when such is the case the crop may be thinner than is desirable. We have not noticed heavy cropping do so much harm to Peach trees as to Vines, but when the crop is excessive the Peaches do not swell to a handsome size.

Peaches out of doors should be thinned in the same manner, and also Apricots, Plums, &c., if handsome full-flavoured fruit

is desired, especially for dessert; but when only for preserving thinning may not be so particularly attended to, at least as far as the fruit is concerned; but every kind of fruit-bearing tree is benefited by removing part of the fruit when the crop is excessive.—A KITCHEN GARDENER.

CLIMBING FERNS.

THE Fern order (Filices) has been estimated to include about three thousand species of extremely varied habit and appearance, but of this vast number none departs so widely or so remarkably from the characteristic Fern habit as the genus Lygodium. Between the delicate miniature Hymenophyllums and the Dicksonias and Cyatheas we have a number of progressive forms which possess certain characters common to the Fern world generally, but in the genus under consideration we find the peculiar and only instance of twining or climbing stems. But singularity is not the only recommendation of the species composing this genus, for all are more or less elegant plants for the fernery and of easy cultivation.

The species mostly require a stove temperature to bring them to perfection, but a few succeed in a cool house, as Lygodium japonicum and L. scandens, and one species of L. palmatum may even be grown in the open air if a little protection be afforded during the winter. They may be employed in a variety of ways, in all cases proving both useful and beautiful. For instance, they can be trained up pillars or rafters or over trellises, or wherever there is a bare portion of the house these can be used with great advantage. They require a compost of peat, loam, and sand in equal parts, with plenty of drainage and abundance of water whilst growing.

About fifteen species are known, very widely distributed, being found in the East Indies, Japan, North America, South America, Mexico, West Indies, New Zealand, and Madagascar. The most distinct and elegant species are the following: L. scandens, from the East Indies, has pretty, opposite, bright green, rather small fronds; L. japonicum has bipinnate fronds, the pinnules finely serrated, also of moderate size; L. pinnatifidum, the fronds palmately pinnatifid, with long finely serrated pinnæ; L. dichotomum, from tropical Asia, fronds light green, very large and distinct; L. palmatum, North America, has palmate fronds with three to five lobes—a fine species; L. flexuosum, East Indies, is an evergreen species with very bright green fronds 6 to 12 inches in length.

The fronds and stems of the smaller and more elegant species, as L. scandens and L. japonicum, may be used with admirable effect in the dressing of epergnes and vases for table decoration, their flexible stems being well adapted for twining between flowers, or gracefully drooping over the edges of the vases.—LEWIS CASTLE.

ORCHID NOTES.

I NEVER until to-day noticed what a beautiful flower Phajus Wallichi is. When carrying a bloom of it with some others in my hand the sun caused its brown sepals and petals to glisten like silk and assume a richness of hue which gave it an appearance of great beauty and an interest in my eyes it never had before. Like other kinds of Phajus it grows and flowers capitally as an ordinary stove plant. When in full growth throughout the summer months it is much benefited by weak manure water every time it requires water. Strong bulbs give a couple of spikes each which generally open in the beginning of April, but this season they are later than usual.

There is a great difference in Orchids of the same genus with regard to freeness of flowering. I think this is peculiarly so in the genus Odontoglossum, even the free-blooming O. Alexandræ has varieties showing these characteristics to a marked extent. I have a couple of plants of O. citrosmum under my charge, young plants, one of which has made flowering bulbs the last two years, and is again this season producing a strong spike; the other has equally strong bulbs, is grown under the same conditions in all respects, yet there is no appearance of flowering. A plant of Phalænopsis Schilleriana would have killed itself, producing yearly a couple of branched spikes some 4 feet in length, had not the spikes been removed this season. The same diversity with regard to freedom of blooming may be noticed in many other species of Orchids, but it is only when several plants of one species are grown together that this characteristic is most noticeable.

I think Dendrobium crassinode Barberianum is one of the sweetest of Orchids, the perfume resembling Violets. With ladies the want of scent in many of the finest Orchids is a serious drawback to their enjoyment of them. The above is peculiarly a lady's Orchid. Another Orchid which at the same time possesses beauty of flower with a delicious scent is Cymbidium eburneum. It also lasts a long time before fading, and though not blooming freely is a species that gardeners ought to cultivate as largely as possible.

That fragrant Orchid, Schomburghkia tibicinus, is flowered every year by Mr. Black, gardener to Sir T. Hepburn, Bart., Smeaton House. Though peculiarly ugly when not in flower it is well worth growing. I have a plant which was damaged two seasons back and has not flowered since; it has broken back, however, and I hope to have a growth strong enough to flower next year.—R. P. B.

ROSES IN FRANCE.

TWO articles have recently appeared in the "Journal des Roses" which ought, I think, to be of interest to English rosarians; therefore I have thought it well to give a *résumé* of their contents. One is by M. Jean Sisley, giving a history of the Roses raised in Lyons for the last forty years, and is a tribute to the industry and perseverance of that distinguished horticulturist; the other a list of a hundred Roses which were selected by a commission of the members of the Horticultural Society of the Haut Garonne as the best at present in commerce. I shall take the former first, with the names of the Rose-growers, the number sent out by them, and indicating those which at present remain in our catalogues. M. Plantier seems to have been the first to commence the pursuit, and his first Roses were sent out in 1835. He sent out five, and of these Alba, Madame Plantier, and Tea Eugène Desgaches are still known. Mons. Jean Beluze sent out his first Roses in 1840, and from that time to 1858 sent out thirty. Of these the most celebrated is that grand Bourbon Rose Souvenir de la Malmaison, of which the parent plant still exists at M. Beluze fils' at Lyon Vaisse. M. Guillot père commenced in 1842, and from that until 1869 sent out eighty-two of his own seedlings besides four of other raisers, and disposed of one of his seedlings to Mr. W. Paul (Virgile), by whom it was sent out. Amongst these were some notable Roses. Thus in 1850 came Madame Rivers; 1851, Tea Canari; in 1854 Lord Raglan, in 1858 Bourbon Comtesse Barbantanne, in 1859 Bourbon Baron Gonella, in 1859 Sénateur Vaisse; in 1866 Madame Bellenden Ker, Mons. Noman, and Mons. Woolfield; in 1868 Victor de Bihan, and in 1869 Comtesse d'Oxford. It was he also who sent out in 1846 Géant des Batailles, raised by Mons. Nerard of Lyons. M. Lacharme began in 1844, in which year he sent out Louise Peyronny, and he has certainly the high honour of numbering amongst his fifty-five Roses some of the very best flowers in existence at the present time. Thus in 1846 he brought out Tea Mélanie Willermoz, more often called Madame Willermoz; in 1852 Victor Verdier (I thought this to be an older Rose), in 1852 Tea Auguste Vacher, in 1858 Virginal, in 1860 Madame Gustave Bonnet, in 1861 Louise Darzens, in 1862 Madame Alfred de Rougemont, in 1865 Baronne de Maynard, in 1867 Coquette des Alpes and Boule de Neige, in 1871 Coquette des Blanches, and in 1872 Perle des Blanches, all of that race of beautiful white free-flowering Roses, which are so very charming, although from their small size not exhibition flowers. Moreover to him we are indebted for some of the grandest Hybrid Perpetuals in growth—in 1865 Alfred Colomb, in 1869 Louis Van Houtte, and (so says M. Sisley) in 1871 Charles Lefebvre. I think he must have put this on at least ten years. I have no old catalogues to refer to, but it was to 1861 that Mr. Hinton assigned it in his election of Roses, and I believe that is the correct date; in 1872 Madame Lacharme, in 1873 Capitaine Christy, in 1874 Hippolyte Jamain and Comtesse de Serenyi. He also sent out in 1873 Marie Finger, raised by a Mons. Philippe Rambaux.

M. Liabaud did not begin to distribute Roses until 1852, and since then has sent out forty-six of his own raising. The best of these are Clemence Joigneaux in 1861, Mons. Boncenne in 1864, Jean Cherpin in 1865, Marquise de Mortemart in 1868, Baron de Bonstetten in 1871, Jean Liabaud in 1875; he also sent out in 1867 Elie Morel raised by Bourcharlet. Ducher sent out his first Rose, says Mons. Sisley, in 1852. This was an Alfred Colomb, certainly not the real Alfred Colomb, which is (see above) one of Lacharme's, and from that date to 1873 sent out eighty-five Roses, his chief gains being amongst Teas. Thus of Hybrid Perpetuals I know of none except Antoine Ducher and Nardy frères which have any reputation; but

Louise de Savoie, Rêve d'Or, Marie Van Houtte, Perle de Lyon, and Anna Ollivier will always make Rose-growers his debtors. M. Damaizin has raised or sent out about forty Roses, and the varieties still retained in our collections and more or less prized are amongst Teas Madame Charles, and amongst Hybrid Perpetuals Abel Grand and Felix Genero sent out in 1865, and Madame Nachury in 1874 and La Rosière in 1874. Mons. Guillot fils has been most successful in his gains, commencing in 1858 with Tea Madame Falcot, since which time he has sent out fifty-eight Roses and is still continuing his active enterprise. In 1859 he sent out Louis XIV., in 1861 Tea Triomphe de Guillot fils, Bourbon Catherine Guillot, and Modèle de Perfection; in 1862 Le Rhône; in 1866 Horace Vernet, and Teas Bouton d'Or, Marie Brèmond, and Madame Margottin; in 1867 La France; in 1868 Teas Adrienne Christophle, Céline Noirey, Marie Sisley, and H.P. Madame Jacquier; in 1869 Tea Catherine Mermet and Madame Hippolyte Jamain; in 1871 Tea Cécile Berthod, Comtesse de Nadaillac, and H.P. Abbé Bramerel; in 1872 Madame Marie Cointet; and in 1874 Tea Aline Sisley.

Mons. J. Pernet commenced in 1859 with Mdlle. Bonnaire; since then he has sent out forty Roses, of which we still retain Tea Jean Pernet, 1867; H.P. Baron Adolphe de Rothschild, 1867; Marquise de Castellane, 1869; Noisette Caroline Kuster, 1873. M. Gonod has sent out thirty-nine Roses; and although some of them have been favourites in their day, I do not think that even Achille Gonod or Madame Rival are much thought of now; and unless the Madame Liabaud I saw at South Kensington last Tuesday is the one raised by Gonod in 1869 I know of none of his much valued now. Not so, however, when we come to Mons. Antoine Levet père, who commenced only in 1866, and has since then sent out fifty-one. Of these we still have and value Therèse Levet, 1866; Tea Belle Lyonnaise and H.P. Paul Neyron in 1869; in 1870 Madame Berard; in 1871 Teas Madame Jules Margottin, Ma Capucine, Souvenir de Paul Neyron, H.P. Etienne Levet, and François Michelon; in 1873 H.P. Etienne Dupuy; and in 1874 Tea Perle des Jardins. M. Joseph Swartz succeeded M. Guillot père in 1870, and since then has sent out twenty Roses, not including those of 1878; amongst them Madame George Swartz in 1871, Duchesse de Vallombrosa in 1875, Tea Contessa Riza du Parc in 1876.

Besides these there are several growers who have sent out smaller numbers but whose Roses are no way remarkable; and there are also, M. Sisley adds, a certain number of varieties which have been raised at Lyons, and of which the entire proprietorship has been sold in England, and sent out into commerce as if they were raised in the climate of Great Britain.

It will be seen from this list that Lyons may well lay claim to being the *Terre des Roses*. Let me recapitulate.

	No. Raised.	No. Retained in 1879.
Mons. Beluze	30	1
Mons. Guillot	82	10
Mons. Lacharme	55	20
Mons. Liabaud	46	6
Mons. Ducher	85	7
Mons. Damaizin	40	5
Mons. Guillot fils	58	22
Mons. Pernet	40	5
Mons. Levet	51	11
Mons. Joseph Swartz	20	3
	508	90

—D., *Deal*.

NOTES ON PALMS.

Of late years Palms have become very popular both for exhibition and house decoration. As decorative plants they stand unrivalled, for I do not know of any other plants that will endure the vitiated atmosphere of rooms in which gas is consumed so well as Palms do. Some species will retain their beauty for months in a room if they are only kept clean and are not allowed to suffer by want of water. If the Palms are repotted too often they soon grow too large for ordinary houses, but when grown in small pots they must be liberally supplied with liquid manure; weak guano water and Standen's manure seem to suit them admirably. Those who have not seen Palms grown in small pots and supplied with liquid manure would be astonished at the results. The foliage is not so large as when the plants have more pot room, but is quite as healthy. Their culture is comparatively easy, and they require the following compost—four parts fibry yellow loam and one of peat, with a little charcoal and enough silver sand to keep it open. Pot very firmly, and supply liberally with water both at the roots and overhead, and when the pots are filled with roots use liquid manure freely. During the growing season Palms require a high and moist temperature. Keep them free from insects, and shade slightly in very bright weather. Those species having small leaflets are best adapted for dinner-table decoration, such as Cocos Weddelliana. I think many gardeners grow this species in too high a temperature. I have seen plants grown in different degrees of heat, and those in the lower temperature were far the best. Such species as Kentia Fosteriana, Seaforthia elegans, Areca Verschaffeltii, and A. aurea are the best for general house decoration; and for the dinner table, such as Areca aurea, A. lutescens, Cocos Weddelliana, Dæmonorops fissus, D. plumosus, D. palembanicus, and Geonoma gracilis, the plants being employed whilst in a small state.—Southern Grower.

FRUIT PROSPECTS AT CHISWICK.

Last year afforded sad and conclusive evidence that a profusion of blossom is not always followed by heavy crops of fruit. In the Royal Horticultural Society's gardens, as well as in the majority of other gardens, there was a great wealth of Apple blossom in 1878, but scarcely any fruit. This year Apple blossom is sparse at Chiswick and in adjoining orchards, but it is not improbable that a fair sprinkling of fruit will follow—heavy crops there cannot be. The Apple failure of last year was not so much the result of frost occurring during the blossoming period as of the wet and dull weather of the last week of April and first week in May, which prevented the dispersion of pollen, coupled also with the generally immature state of the wood owing to the unfavourable autumn of 1877. Last year the autumn was to a fair degree favourable to the maturation of the wood of fruit trees, yet owing to the absence of fruit they grew somewhat luxuriantly. An unusually severe and prolonged winter has retarded the expansion of the blossom, which does not as yet appear to have sustained any material injury, although rather sharp frosts occurred last week. This immunity from injury is possibly due to the dry atmosphere that prevailed during the frosty nights referred to; and as neither parching sun nor protracted rains have prevailed during the present blossoming period a fair set may be hoped for in the south. This, however, is penned in painful consciousness that frosts occurring considerably after the present date have in past years ruined the fruit crops. Similar frosts may of course occur again; but according to the law of compensation genial weather is certainly overdue. We have had sufficient of frost to make up the deficiency of three mild winters, and we now want a tropical summer to ripen the crops of fruit and of grain.

But while Apple blossom is scant at Chiswick, Pear blossom is profuse. Last year the Pear trees in the garden were nearly flowerless; this year they are magnificent. The grand sturdy pyramids, so sturdy that no winds can move the branches, so trained that the sun's rays have unobstructed access to the very centres of the trees, are just now a "sight worth seeing." The handsome columnar trees not more than 18 inches in diameter at the base, and tapering upwards to a height of 8 or 9 feet, are densely draped in their flowery dress; border ornaments producing much beauty, and prospectively fruit in little space, they are models of their kind. Vertical cordon Pear trees 5 to 6 feet high, with stout stems 1½ inch in diameter near the top and firm as a row of hedge stakes, are pillars of blossom from the ground upwards. These planted less than 2 feet apart form a fence, strikingly attractive, and when in full crop profitable. Pears on walls and as espaliers are also masses of blossom, except perhaps in a solitary instance when a tree is not grafted on a fruitful stock, as, for instance, in the case of a Jargonelle on the Pear which has not one truss of blossom, while its neighbour of the same size and age on the opposite side of the walk on the Quince is a perfect thicket of grand flowers. It is "object lessons" such as this that render Chiswick so instructive. The observant visitor cannot examine this time-honoured old garden, as rich in present resources as in past memories, without deriving gratification, and adding at the same time to his store of practical knowledge.

As an example we turn to the experiments which are being conducted with the various stocks devoted to the Apple. Last year the relative productiveness of the several stocks were noticed in these columns, and this year their leading characteristics are well maintained. First, there are the stocks growing in their free ungrafted state. Then at the suggestion

of Dr. Hogg representatives of the whole of them were four years ago grafted with the same variety of Apple—Blenheim Pippin. The influence of the stock on the scion is certainly very marked, and in one instance at least the influence of the scion on the stock is equally striking. This refers to the French Paradise. When not grafted the stocks die in a few years, but when grafted healthy fertile trees are produced. This is not the case with the Blenheim Pippins referred to merely, but with various other sorts that are established on the stock and now in a fruiting state. This is one of the most precocious of stocks—the two four-year-old trees produced forty-four trusses of blooms last year and thirty-three this. But it is not quite so free as the Doucin, which ungrafted is free, erect, and slender; on this stock the number of trusses produced by the two trees was last year sixty-seven, this year fifty-eight. The other stocks are far behind these in productiveness; for instance, the French free stock—Pommier Franc—which is the latest of all, did not produce one truss of bloom neither last year nor this. The English Crab has two trusses last year and none this. Rivers' Broad-leaved Paradise, which is a strong healthy stock, had twenty-one trusses last year and three this, while Rivers' "Miniature" and "Pigmy," both, however, free growers, produced, the former five trusses last year and two this, and the latter twenty-three trusses last year and three this. The French Paradise of Lindley, syn. English Paradise, a moderate grower and healthy stock, produced last year eleven, this year five trusses. The old Chiswick Paradise, a free, clean, and good grower, produced two trusses last year and none this; similarly Rivers' English Paradise or Nonesuch, a healthy moderate grower, produced no blooms this year. Scott's Pommier de Paradis and English Paradise are apparently identical; they are slender in growth, scraggy, and unkindly, and produced four trusses last year and five this. The Dutch Paradise, a clean, moderately strong, and healthy stock, produced eleven trusses this year; of its last year's yield of blossom I have no return. As will be seen, not only is the relative productiveness of the stocks thus ascertained, but they also afford evidence of the general scarcity of Apple blossom this year as compared with 1878. The best stock for promoting early fruitfulness combined with healthy growth is the Doucin. This is well shown in another experiment, where may be seen several of the same varieties of Apples worked last year on this and the French Paradise stocks, for those on the Doucin are decidedly in the better condition. The various examples of the English Paradise stock under the several names are good and moderately strong growers, and require more age to fruit freely; so also, but perhaps to a less extent, do the Rivers' stocks, except the Broad-leaved Paradise, which is very robust. The Dutch Paradise, which is a very useful stock, appears to be intermediate between the French and English Paradise stocks. The others call for no comment. The experiments noted, and which are well and carefully conducted, are very important, and they cannot fail being of great usefulness to the horticultural world.

Plum blossom is sufficiently plentiful for producing a good but not a heavy crop. Cherry blossom is more profuse, but the trees are not wreathed so densely as the Pears. The Peach trees, diagonal cordons, but not closely spurred, which had such a remarkable crop last year, are blooming less freely this, but sufficient blossoms appear to be setting to produce a satisfactory crop. In the orchard house the crop of Peaches and Nectarines promises to be an excellent one, but the Apricot trees are nearly fruitless.

The newly-planted Vines of Gros Colman and Alicante are starting strongly and afford promise of a grand sight being produced in a few years. The mixed house of Vines in bearing are showing well, except Ferdinand de Lesseps and Duke of Buccleuch, neither of which are growing satisfactorily; but on a future occasion I will tell where the last-mentioned Grape is growing as luxuriantly and setting its berries as freely as the Black Alicante.

At no period of the year can Chiswick look more attractive than it does now; while the extensive fruit grounds of Mr. Francis Dancer are exceedingly beautiful.—J. W.

PROPAGATING FICUS ELASTICA.

YOUR Stoke-on-Trent correspondent (page 344) may indulge in hope and practise patience. This Ficus may be propagated from leaves as certainly as any plant in cultivation; but every leaf must have a portion of stem remaining with it for the sake of the eye at the junction, whence the young plant will proceed. The late Mr. West of Walnut Tree Nursery, Stoke Newington, made it a feature of his business for many years to grow Ficus elastica from leaves, and plants so produced were by him often sold in bulk to the trade. I have seen his propagating frames occupied by hundreds at a time, and there was never more than a leaf with a little wood attached as the foundation of a plant. The leaf itself will not make roots, these all proceed from the woody base.—SHIRLEY HIBBERD.

ROYAL HORTICULTURAL SOCIETY.

MAY 13TH.

ACCORDING to the schedule of arrangements Roses in pots were to have been a special feature at this Meeting; but in consequence of the lateness of the season on the one hand, and great shows pending on the other, no collections of pot Roses were staged for the medals that were offered, but a few Roses were grouped amongst the miscellaneous collections of plants, and twelve boxes of cut blooms were exhibited. Yet the conservatory was rendered attractive by the contributions of nurserymen and market growers. Messrs. Veitch, Williams, Lee, Osborn, and others contributed collections described below, and which formed a display that was much admired by a large and influential company of visitors.

Taking the collections pretty much in the order of their arrangement we first notice the group arranged by Mr. B. S. Williams, which was principally composed of fine-foliaged plants such as Dracænas and Crotons in superb health and colour, with a background of elegant Palms, and a magnificent centre specimen plant of the beautiful white Gloneria jasminiflora, flowering very profusely. The Dracænas included such fine forms as D. Bausei, D. Fredericki, D. Willsi, D. Berkleyi, and D. Renardise, Mrs. Wills, D. Goldieana, and D. terminalis alba. The best Crotons were C. Disraeli, C. Burtoni, C. albicans, and C. Crown Prince. The centre plant of the back row was the beautiful Kentia australis. Pans of Adiantum Williamsii, and the new Coleuses Kentish Fire and Lord Falmouth were shown, the former of the Coleuses being especially rich in colour. A silver Flora medal was awarded.

Messrs. James Veitch & Sons, Chelsea, staged a small but pretty group of Orchids and new plants, including a flowering specimen of the new Dioscorea retusa from South Africa (figured on p. 168, vol. xxxi.). Dendrobium thyrsiflorum was bearing five magnificent pendulous spikes of its beautiful bright and delicate flowers. The fine Cattleya Mendelii was shown with four large flowers, the sepals and petals of which are creamy white, the labellum being fringed and of a rich purplish lake tint near the extremity. The epiphytal Oncidium concolor had four spikes of its pale yellow flowers; and Odontoglossum Roezlii was very pretty with white sepals and petals blotched with lake at the base, the labellum being white marked with yellow at the base. Rhododendron Duke of Edinburgh was bearing several heads of bright salmon pink flowers; and R. Maiden's Blush had a head of finely formed and extremely delicately tinted flowers. Odontoglossum sceptrum, O. Alexandræ, and O. cirrhosum were very good. Masdevallias Lindeni, Veitchiana, and Harryana were well represented. Tillandsia splendens major bore a spike 2 feet long, extremely bright with its closely imbricated scarlet bracts. The new Croton Evansianus was also shown well coloured. The same firm exhibited a very large and well-arranged group of Azalea mollis, varieties ranging in colour from yellow to bright salmon pink, interspersed with and relieved by numerous Clematises and elegant Maples, the group being backed up with white and blue Clematises alternated with green-leaved Maples; the centre plant was a fine specimen of the dark-leaved Acer dissectum. The best varieties of Clematis were among the blues, Stella, Aureliana, Albert Victor, Lord Londesborough, Duke of Edinburgh, Lord Derby, Duke of Buccleuch, Lady Londesborough, the fine double Countess of Lovelace, and The Queen. The best whites were Mrs. Bateman and Fair Rosamond. The best Maples were in the green-leaved forms Acer polymorphum flavescens, and A. palmatifidum; in the red-leaved forms A. dissectum and the large-leaved A. sanguineum. A silver-gilt Flora medal was most deservedly awarded for this fine group.

A silver Banksian medal was awarded to Mr. John Wills, Brompton, for a very tasteful and elegant group of plants formed of clumps of Azaleas, numerous Palms, Caladiums, Gloxinias, Adiantums, and Dracænas; a few Cytisuses and dark blue Cinerarias added greatly to the general effect. The group was fringed with Selaginella Kraussiana, and backed up with tall and graceful Palms; in the centre being a fine specimen of Cocos Weddelliana—a very artistic arrangement.

A silver Banksian medal was awarded to Messrs. Charles Lee and Son, Hammersmith, for a large and pretty group of Azaleas, Spiræas, Deutzias, Palms, and Cytisuses, also a few pot Roses, the centre plant being a large and well-flowered specimen of the dark and rich semi-double Azalea La Progrès, backed with Phormium tenax variegatum.

From Messrs. Osborn & Sons, Fulham, came a miscellaneous collection of foliage plants, principally Palms, Begonias, Ferns, Yuccas, and Aralias. A large basket of the extremely dark blue

Gentiana acaulis was shown, and was very attractive; also a plant of Podolobium staurophyllum, a small yellow-flowered Leguminous plant. A vote of thanks was awarded.

Messrs. H. Lane & Son, Great Berkhampstead, exhibited a group of thirteen large and well-flowered Rhododendrons. The best varieties were Michael Waterer, crimson; Lord John Russell, small compact heads of purple flowers; Duchess of Sutherland, warm pink; Queen, large flowers and noble heads, pinkish white with the upper petal mottled with yellow; Fastuosum flore-pleno, pale purple flowers in very large and somewhat loose heads; Mrs. J. Clutton, compact heads of white flowers with greenish-yellow spots on the upper petal; Auguste Van Geert, extremely large heads of crimson flowers; Concessum, small compact heads of good pink blooms. In the front of the group alternate with the Rhododendrons were six specimen plants of Adiantum cuneatum. A silver Flora medal was awarded. To Mr. Aldous, florist, South Kensington, a vote of thanks was also awarded for a group of Azaleas, Spiræas, Dielytras, Pelargoniums, Hydrangeas, Ferns, Palms, and Rhodanthes, with a few plants of Chrysanthemum frutescens, edged with Selaginella.

Messrs. Barr & Sugden, Covent Garden, exhibited a great number of cut blooms of Narcissuses, which were greatly relieved by a few bunches of the bright scarlet Anemone fulgens multipetala, a few Ferns and small Palms. A vote of thanks was awarded.

A silver Banksian medal was awarded to Messrs. Paul & Son of Cheshunt for six boxes of cut Roses, extremely good both in form and colour. Gloire de Dijon was beautiful as usual, also Belle Lyonnaise. Many other good varieties were represented, including Céline Forestier, Duke of Edinburgh, Marquise de Castellane, Maréchal Niel, La France, Robert Marnock, Cheshunt Hybrid, Charles Lefebvre, and Madame Willermoz.

Messrs. Wm. Paul & Son, Waltham Cross, sent six boxes of superb cut Roses. In addition to the varieties already named were Madame Victor Verdier, Sénateur Vaisse, Alfred Colomb, Louis Van Houtte, Marie Baumann, Mont Blanc, Star of Waltham (very fine), Queen Eleanor, François Michelon, Baronne de Rothschild, Madame Margottin, Mons. Furtado, and John Hopper. A silver Banksian medal was awarded.

Mr. Dean of Ealing exhibited a group of new varieties of Primula amœna, the best of which were Laciniata, Lilacina, Alba major, Maxima, Rosalie, Snowflake, Cærulea alba, Purpurea, and Laciniata rosea. All were remarkably healthy and freely flowered, and a silver Banksian medal was awarded. Mr. Charles Turner, Royal Nursery, Slough, sent a dozen large blooms of that fine Carnation A. Alegatière, each bloom being over 3 inches in diameter and very rich in colour.

From Messrs. J. & J. Hayes, florists, Edmonton, came a group of eight large-flowering French Pelargoniums, comprising Duchesse de Nassau, Prince of Wales, and the pretty seedling Maid of Kent, the petals of which are white, blotched with pink in the centre; good flower and truss. These are very useful for conservatory decoration early in the season. The same exhibitors also staged a large group of Cinerarias, comprising about 140 plants well flowered, very healthy, and including some very good tints, especially in the blue and crimson selfs. The collection was edged with small Ericas. A silver Banksian medal was awarded.

Messrs. Hawkins & Bennett, florists, Twickenham, showed a somewhat formal but pretty group composed of Adiantum cuneatum, with a row of Pelargonium Vesuvius at each end, triangles of the pink Pelargonium Princess Teck at the corners, the centre being filled in a semicircular form with cut blooms of Lily of the Valley (Victoria), with very large and fine spikes and flowers. A silver Banksian medal was awarded.

From the Society's gardens at Chiswick came a group of laced Alpine Auriculas and Azaleas, also a magnificent old plant of Azalea indica alba 8 feet high and the same in diameter, most profusely flowered and very effective.

FRUIT COMMITTEE—Henry Webb, Esq., V.P., in the chair. A seedling Melon was exhibited by Mr. I. Jaques, gardener to J. D. Perrins, Esq., Davenham Bank, Malvern, raised from Turner's Scarlet Gem crossed by Bromham Hall. It is a yellow much-netted green-fleshed variety, with delicate melting flesh, and very richly flavoured, said to grow from 1½ to 3 lbs. weight. It was awarded a first-class certificate, and it was named Davenham Early. Mr. Pratt, gardener to Viscount Hill, Hawkstone Gardens, Shrewsbury, sent two dishes of Figs—Brown Turkey and Grosse Monstrueuse de Lipari. A cultural commendation was awarded.

FLORAL COMMITTEE.—Dr. Denny in the chair. First-class certificates were awarded to Messrs. Veitch & Sons for Croton Princess of Wales, with long, narrow, undulated, spiral leaves, pale yellow and green. For Ranunculus Lyalli, from New Zealand, with large, orbicular, dark green leaves, and pure white flowers about 2½ inches in diameter. For Azalea (pontica) narcissiflora, small double flowers with acute petals, pale yellow, and very fragrant. For Azalea (mollis) Comte de Gomer, with enormous flowers of a bright salmon pink colour; very free-flowering. The same firm also exhibited Crinum Macowani bearing fine white flowers delicately suffused with pink; also Erythrina marmorata, from the South Sea Islands, with good foliage marbled with white.

A botanical commendation was awarded to Mr. Elwes, Preston, Cirencester, for Arisæma speciosa, from the Sikkim Himalayas. The spathe is an extremely dark reddish brown veined with white, and the spadix terminates in a very long and fine tail-like appendage. A first-class certificate was awarded to the same gentleman for Arnebia echioides, which is described below.

A first-class certificate was awarded to Messrs. Osborn & Sons, Fulham, for Primula Golden Gem, a good flower and bright yellow colour, obtained from Belvoir Castle Gardens, Grantham.

Mr. B. S. Williams, Holloway, was awarded a first-class certificate for Cupania elegantissima, with pinnate glossy green leaves; for Dracæna superba, with narrow and bright dark red leaves; for Amaryllis Mrs. Morgan, flowers neatly formed, of moderate size, the segments being of a rich crimson colour with a narrow white undulated margin.

Mr. Boller, South Row, Kensal New Town, exhibited several Succulents, of which Mammillaria filifera and M. formosa were highly commended.

Mr. R. Dean, Bedfont, Hounslow, was awarded a first-class certificate for Polyanthus duplex Prince of Orange; good umbels of small, neat, bright yellow flowers, with a faint orange tinge round the mouth of the tube.

Mr. Green, gardener to Sir G. Macleay, Pendel Court, Bletchingly, was awarded a vote of thanks for cut blooms of Gongora portentosa, Alpina nutans, and Crinum natalensis (ornatum), and a pot of terrestrial Orchids.

Mr. W. Reeves, gardener to C. Hart, Esq., Lee, was awarded a vote of thanks for Masdevallia Veitchiana and Anthurium Schertzerianum in excellent health, and also a cultural commendation for Odontoglossum vexillarium with seven fine spikes of large flowers.

A first-class certificate was awarded to Messrs. John Laing and Co., Forest Hill, for a double Tuberous Begonia Comtesse H. de Choiseul with very large flowers, cream colour faintly suffused with pink. Mr. J. Donaldson, Keith Hall, Inverurie, N.B., was awarded a first-class certificate for Selaginella Kraussiana aurea, a golden form of this well-known plant, possessing considerable attractions. Several other plants were exhibited, but were passed by the Committee.

NOTES AND GLEANINGS.

THE ROSE SHOW OF THE ROYAL HORTICULTURAL SOCIETY which was announced to be held on June 24th, has, owing to the lateness of the season, been postponed to July 8th. Mr. Wm. Paul and Mr. Charles Turner intend having special exhibitions in connection with the Show, and a display of Roses of unusual magnitude is anticipated. The Pelargonium Society's Show is also postponed, and will be held at South Kensington in conjunction with the Rose Show.

—— AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, Arthur Grote, Esq., F.L.S., Vice-President in the chair, the following candidates were ELECTED FELLOWS of the Society—viz., C. J. Bethell, Mrs. Bowman, Ulick John Burke, Edward Edwards, Mrs. Fountain, Edmond Gray, Lieut.-Colonel Cecil Ives, Hon. Mrs. Cecil Ives, William H. Mare, T. W. Chester Master, M.P., William Napier, Foster W. Proctor, Lieut.-General C. Cameron Shute, M.P., Mrs. Thomas, Alfred Trevor.

—— WE remind our readers that the first of the great summer flower shows takes place on Wednesday next, in the gardens of the ROYAL BOTANIC SOCIETY, REGENT'S PARK. The exhibition will be arranged in the large marquee, which shows to great advantage the excellent plants that are usually placed in competition for the prizes offered, and which, well arranged as the specimens invariably are, produce a highly imposing display.

—— WE understand permission has been given to Messrs. John Waterer & Sons of Bagshot to hold their EXHIBITION OF RHODODENDRONS in June next in the gardens of Cadogan Place, Sloane Street.

—— TWO hardy Boraginaceous plants with some attractions are NONNEA LUTEA, a native of Russia, with lanceolate hirsute leaves and tubular yellow flowers; and ARNEBIA ECHIOIDES. In the latter the funnel-shaped bright yellow corollas are five-lobed with a dark brown spot between the lobes. The leaves are long and lanceolate.

—— WE regret to hear of the DEATH OF MR. WILLIAM TILLERY, which occurred on the 25th ult. He was seventy-three years of age, and was gardener to the Dukes of Portland at Welbeck for forty-five years. Mr. Tillery, who was an excellent gardener and an estimable man, was highly respected by all who knew him.

—— IN the CAPE HOUSE at Kew several pretty little plants

are now flowering which are too little known in general cultivation. Cyanella lutea, introduced in 1788 from the Cape, is an attractive Liliaceous bulbous plant of easy cultivation. It succeeds in a compost of sandy loam and peat. Pentlandia miniata from Peru, has two or three orange-coloured flowers on an umbellate scape, which is about 15 inches in height, and appears before the foliage is developed. Babiana rubro-cyanea has the outer portion of the perianth dark blue with a crimson circle in the centre. It has been long known, having been introduced in 1794. B. stricta has dark blue flowers. Both species have characteristic tomentose acute leaves.

—— REPLYING to the inquiry of "W. W." on COLOURED LIMEWASH FOR WALLS (page 343), "H. B." observes that a very nice stone-coloured limewash which will not rub off may be obtained by adding three or four handfuls of the best Portland cement to a bucket of freshly made limewash. It should be well stirred up before using.

—— VERY beautiful is MAGNOLIA YULAN (CONSPICUA) in some shrubberies at the present time, its leafless branches being covered with half-opened pure white flowers. The pyramidal form and free habit of this tree entitles it to a prominent position in all gardens. It is a native of China.

—— A CORRESPONDENT, "N. C. P.," desires to know the best way to PRESERVE INDIARUBBER GARDEN HOSE from cracking and otherwise perishing. He has been told to keep it in water is good, but this he fears would spoil the metal fixings. Those who have used indiarubber hose might usefully communicate their experience on the best mode of preserving it.

—— WE recently observed in Mr. Ware's Nursery, Tottenham, two pretty alpine RANUNCULUSES—viz., R. amplexicaulis and R. Bertoloni. The former, a native of the Pyrenees, is well known. The leaves are acuminate and dark green; the flowers are large and pure white, with the yellow stamens clustered in the centre. The latter is a rare and very pretty species from the Tyrol, with dark green glossy orbicular leaves deeply crenated, and small neatly formed white flowers. These little plants are well adapted for the rockery.

—— OF the many attractive Rosaceous shrubs which adorn our gardens few excel CYDONIA SINENSIS, introduced from China in 1818. The flower buds before expansion are a bright crimson colour, and the fully opened flowers have the under side of the petals of a similar hue, whilst the inner part is most delicately suffused with a lighter tint. The flowers are slightly pendulous, and borne in very numerous dense clusters. The semi-double variety of Prunus (Amygdalopsis) triloba, so useful for forcing, is also now very pretty with its abundant pale pink blossoms.

CARNATIONS SOUVENIR DE LA MALMAISON AND LADY MIDDLETON.

THE excellence of Carnations, either when grown as specimens for adorning the greenhouse or conservatory or for the production of blooms for cutting, is beyond question. They are never unsightly except when mismanaged. As cut flowers they are invaluable, and for massiveness of form and grateful perfume the varieties above named are unsurpassed. Their lasting quality, too, is worthy of note. We have used the same flowers in dressing the dinner table on three separate occasions with an interval of one week between each time. Of course they were taken care of and kept in a cool cellar until required.

Everyone who knows anything about greenhouse Carnations is familiar with the fine old Souvenir de la Malmaison, but I do not know that Lady Middleton is so well known. It is as robust as the former, darker in the foliage, and the flowers are of a rich reddish salmon colour. They make a most desirable pair. We flower them more or less all the year round with very little trouble, and for the benefit of your readers whom it may interest I give an outline of the system which has been very successfully adopted for many years.

In September the desired number of cuttings are taken off, choosing those that are vigorous; then the requisite number of 5-inch pots are prepared to receive them by being well drained. On the potsherds a layer of old decomposed manure is placed, and then the pots are filled fully three parts with a compost of loam and leaf soil and a dash of sand, the remaining space being filled with pure sand. The cuttings are inserted rather thickly, and, having dipped the pots in a pail of water to insure saturation, they are placed near the glass in the front of a cold pit, where they remain all winter and receive no more attention except a judicious watering occasionally. The following March the cuttings, being well rooted, are potted-off singly into 3-inch pots and replaced in their old quarters; here they are kept moderately close for about a week, and receive no water except a sprinkling with the syringe two or three times a day. This renders shading unnecessary, and is, I think, preferable. When rooting into the fresh soil freely the plants are watered thoroughly as they require it, and the leading shoots are pinched off in order that three or four side shoots may start near the base of each of the plants. In about two months' time they will be ready to shift into 6 or 7-inch pots according to their size. At this and all successive pottings it is well to use the soil in a rough lumpy state. The loam we have is rather light and poor when we get it, but is brought into splendid condition by being stacked one year previously to being used. Layers of turf and stable manure are built-in alternately, with a sprinkling of bone meal, and the whole is thoroughly soaked with liquid manure as the operation proceeds.

After the 8-inch shift the plants are grown in a frame, with slates below the pots to prevent the entry of worms, and watered freely, the growth being equalised by pinching. The sashes are taken off altogether on fine nights so that the plants may be refreshed with dew. In September, or as soon as the roots have thorough possession of the soil, the plants are shifted into 10 or 12-inch pots, and in these they commence flowering the following spring. When the plants become rootbound we supply them with weak liquid manure made of sheep dung, a little guano, and soot. Under this treatment they continue to flower for months, producing that fine dark foliage which is so characteristic of healthful vigour. Those wanted for later flowering are pinched back, while if very large specimens are wanted they are potted in 18 or 20-inch pots. For large pots we mix a lot of broken crocks with the soil to keep it sweet, for if it becomes sour the plants soon sicken and die. Before shifting them, too, they are well watered, and do not require any more until they have rooted in the fresh soil; but flagging is prevented by the frequent use of the syringe. That system is, I consider, essential to the successful shifting of large plants. Now that the plants are large enough, it is an easy matter to have a continuation of bloom. With good management they may be kept alive for many years, and by judicious pinching in spring and keeping a few plants in a growing temperature—45° to 50° all the winter—flowers may be had at any time.

It may be worthy of remark, that we have a frame full of plants of these two varieties that stood this last severe winter with only a single mat over the frame and a little loose litter. This, however, was frequently covered with a few inches of snow, than which there is no better protector. For ten weeks the frame was never uncovered but once, when we gratified our curiosity with a peep at them. They are now looking very healthy, though for the greater part of that time they were frozen as hard as possible, the thermometer having indicated as many as 30° of frost.—COLIN MCLEAN, N.B.

NARCISSUSES.—No. 1.

I RECENTLY paid a visit to Tottenham to see Mr. Ware's hardy plants, and found, as I expected, the Daffodils in full beauty. A large portion of this nursery is occupied by Narcissi, and at the time of my visit these charming bulbs were very bright. I wonder why they are not more extensively grown by amateurs. It must either be that many have not the faintest idea of the numerous varieties there are, or else the expense of the choice varieties is too great. When I say expense, I know that enthusiasts never consider this, but still 10*s.* 6*d.* for one Daffodil is a somewhat long price.

The genus Narcissus has been ably monographed by Mr. J. G. Baker, and the three sections he adopts are founded on the relative lengths of the corona and perianth segments as follows—

1. Magni-coronatæ. The corona as long as the divisions of the perianth or longer.
2. Medio-coronatæ. The corona half as long as the perianth divisions.
3. Parvi-coronatæ. The corona less than half as long as the perianth divisions.

After this brief introduction I will proceed to describe under each of these sections a few of the leading varieties which were in bloom at the period of my visit, and leaving for a future paper a more detailed list. In the first section is the grandest Daffodil that I have yet seen, The Emperor, and next

to that The Empress (fig. 52). These are much alike, the former being the larger of the two. The flowers are very large and bold; the perianth is pale sulphur colour, almost white, while the corona is a golden tint. The combination of the two colours

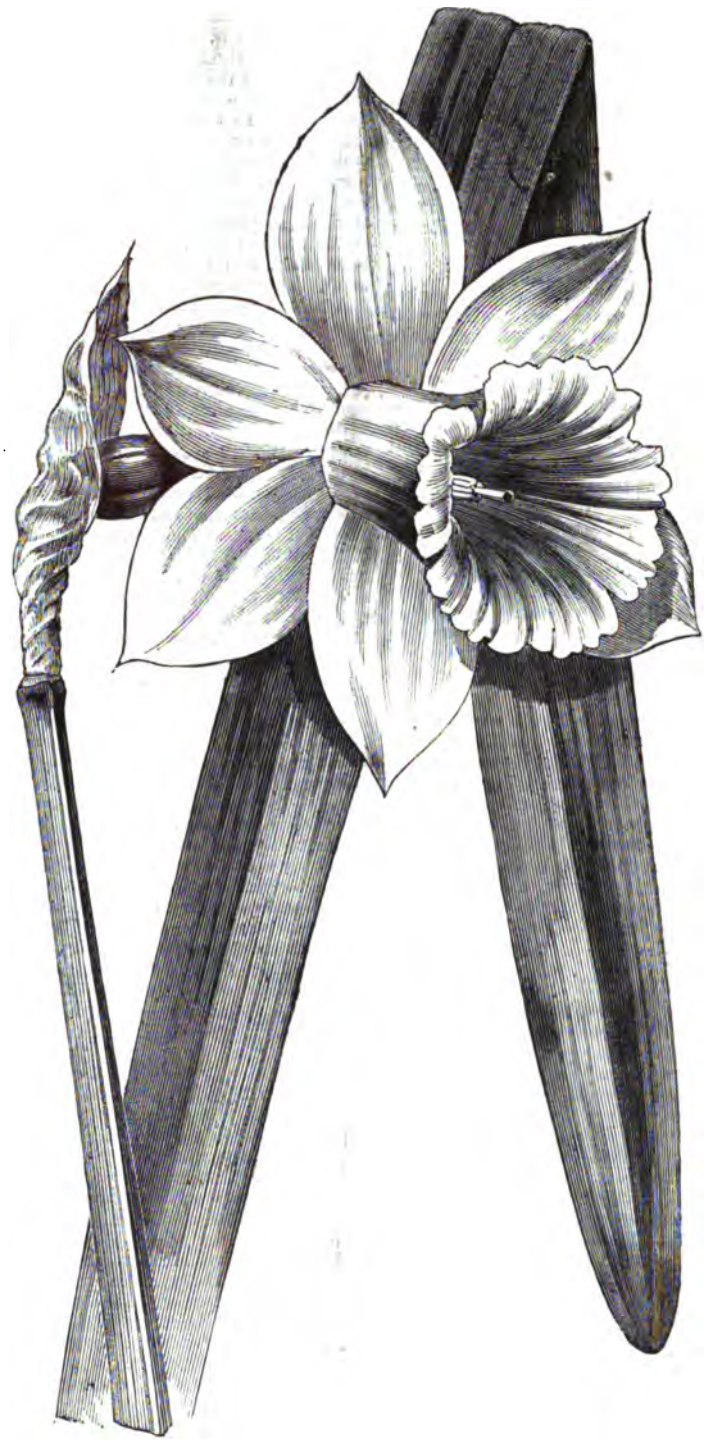


Fig. 52.—NARCISSUS BICOLOR VAR. EMPRESS.

is so striking that I can imagine Mr. Burne Jones or Mr. Morriss going into ecstacies over them. Ajax Major is a very fine single flower, and may be called a gold self. Trumpet Major resembles Ajax, but the perianth is a shade lighter. Telemonius pallidus has the perianth still paler, with the corona half as long. Obvallaris maximus, with the perianth

and crown of a golden hue, nearly the same in size as the preceding. Obvallaris nobilis is much the same as maximus, only smaller. Rugilobus has a fine bold flower with a sulphur-coloured perianth and a darker crown. A beautiful variety is

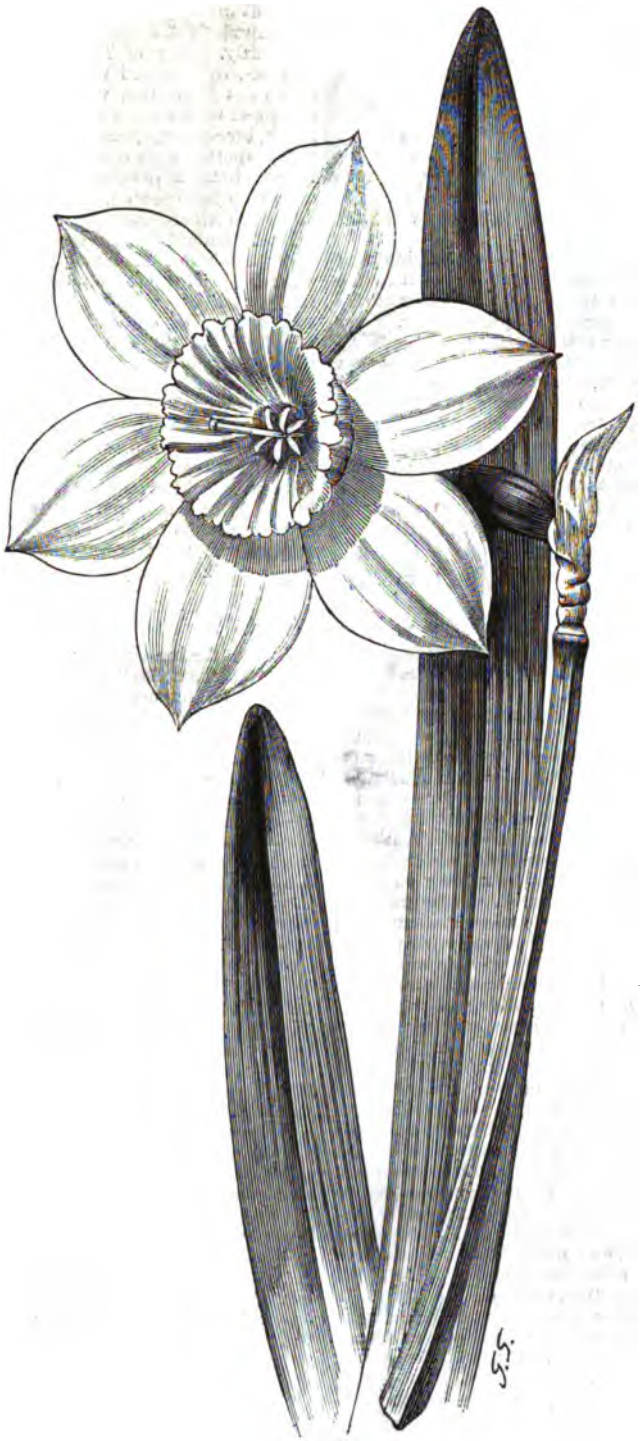


Fig. 53.—NARCISSUS INCOMPARABILIS ALBUS EXPANSUS.

Bicolor Horsfieldi with splendid flowers. The perianth is pure white; the corona, which is twice as long, is of the richest gold. Cernuus and Moschatus have trumpet-shaped flowers; the perianth and crown are white in the former, the crown being pale sulphur in the latter. One of the best doubles in this section is Lobularis plenus, with very bright yellow flowers.

Second Section.—In this the most noteworthy are the Incomparabilis varieties. These are both single and double, and some of the latter are most beautifully flaked or suffused with orange or citron. These are called by Mr. Ware Aurantiacus flore-pleno. Next, there is a beautiful single variety called Aurantiacus expansus. Here the sulphur-coloured perianth is expanded, or its petals may be said to be spread out like an Elizabethan ruff. Incomparabilis pallidus aurantiacus expansus despite its long name is worthy of notice. The flower is single but very fine, sulphur and gold coloured. Macleai maximus has a white perianth and yellow corona, the flower being neatly formed. Incomparabilis sulphureus plenus is an excellent double variety with very large sulphur-coloured flowers. Incomparabilis albus expansus (fig. 53) is a magnificent variety with finely formed flowers, the perianth being white, and the corona a beautiful clear yellow. The third section I will refer to in my notes on the Tooting collection.

Florists have of late been very busy in classifying and selecting a large collection of Daffodils which were left by the late Mr. Leeds. This gentleman spent a great portion of his life in naming and classifying these flowers, and Mr. Peter Barr and Mr. Ware are gradually bringing into commerce all the most distinct and beautiful. But at present the Leeds Narcissi are very scarce and dear. There was also a singular sport. It is a semi-double flower, gold inside, but the outer petals are veined with green. Another curious form in the Leeds beds was a single expanded flower, the perianth of which was of two colours. Another, only bearing the No. 14, but belonging to the Incomparabilis expansus section, has a pure white expanded perianth with a deep orange crown. A more delightful contrast cannot be imagined.—WYLD SAVAGE.

PLANT-GROWING AT COPT HALL, STIFFORD, ROMFORD.

THE plant houses adjoining the residence of Mr. F. Wagstaff are at all times worth a visit, as Mr. Streeter, the gardener, not only knows what is best to be grown, but also the treatment the many species and varieties require.

The stove, a good-sized span-roofed house, is the most attractive both to the owner, visitors, and gardener. The west end is covered with two plants in full bloom of the beautiful wax-like Hoya carnosa, and a fine plant of Stephanotis floribunda completely covers the opposite end, and also extends up the sides a considerable distance. It is growing and flowering very freely in a comparatively small tub, 18 inches wide, 4 feet long, and 18 inches deep; the front and ends are covered with virgin cork, over which pockets formed by nailing on small lengths of the narrowest strips are distributed. These are tastefully filled with Lycopodiums, Ferns, Begonias, Panicums, &c. The Stephanotis is growing in a soil consisting principally of turfy loam with a slight addition of leaf soil and sand rammed in firmly, and a few broken bricks intermixed at planting time. Weak liquid manure is given at every watering in preference to an occasional strong dose. Gardenias are also well grown. Fortunei is the favourite species, preference being given to young plants, and carefully avoiding overpotting. Dipladenia boliviensis and D. amabilis are growing freely, and usually flower well in a very loamy soil and rather small pots. Clerodendron Balfourianum on a globe trellis was flowering very freely, and was extremely useful for cutting at Easter, and a similarly trained plant of Jasminum Sambac flore-pleno has produced its very fragrant double white blossoms throughout the winter; in fact it is almost perpetually flowering, and deserves to be more generally grown. Eucharis amazonica receives very liberal treatment, and usually flowers five times during the year. To induce flowering the plants are either shaken out and the strongest repotted, or they are rested about three weeks in a cooler and drier atmosphere, re-introducing them into strong heat invariably causing them to bloom afresh. In either case it is very important that the bulbs be well matured before they are disturbed.

The Orchids in blooms were the pretty little Dendrobium pulchellum, the moisture and shade-loving Cypripedium barbatum, Oncidium sphacelatum, the very attractive Cattleya superba, Odontoglossum Alexandræ (Bluntii), &c. Ferns are particularly well grown in a loamy soil mixed with old broken bricks. Saline liquid manure is occasionally administered, evidently with excellent results. A plant of Cibotium princeps in a 20-inch pot has six perfect fronds, each fully 6 feet in length. Alsophila australis, Gymnogramma chrysophylla, Asplenium nidus-avis australasicum (Neottopteris nidus), and Adiantums farleyense and amabilis are all very fine. Crotons, Dracænas, Gloxinias, &c., are also well represented.

In a cool plant house, Fuchsia Arabella Improved grown on the roof is very attractive. Many varieties of Fuchsias are particularly well adapted for training up pillars over archways, &c., but none surpass Arabella Improved. Here also there were numbers of Azaleas both trained and untrained all flowering freely. Flag of Truce, a double pure white; La Belle Gandois, salmon and white; Perryana, dark orange scarlet; Reine des Pays Bas, violet pink striped with crimson and margined with white; Souvenir de Prince Albert, double, rosy peach, broadly margined with white; and Eulalie, bluish upper petals spotted with carmine, were the best. Mr. Streeter has raised a batch of seedling Azaleas, which at the time of our visit were only just opening. The seed-bearing parent was Souvenir de Prince Albert crossed with Chelsonii and Roi des Beautés.

Half standard Tea Roses were flowering very freely, the best being Niphetos, Madame Falcot, and Souvenir d'un Ami. Maréchal Niel trained on a globular trellis was also flowering freely, and both this and the Teas ought to be grown wherever there is a demand for cut flowers. Among the great variety of florists' flowers here grown one of the best things is the yellow-flowered, dusty-leaved, and very fragrant Abyssinian Primrose (Primula verticillata). It is grown from seed sown annually in heat and treated in every respect similar to the P. sinensis. The Grapes in early and late vineries are looking well, the bunches plentiful and of a useful size. About four hundred Roses are grown, and all with the exception of Lamarque and Devoniensis have survived the past severe winter. Mr. Streeter shares in the belief that there are three varieties of Devoniensis of which they had specimens—viz., the climbing variety, and the flowers of the others being cup-shaped and Niphetos-like respectively.—W. IGGULDEN.

EXTRA WORK AND WAGES IN GARDENS.

UNDER the heading of "Employers' Difficulties," on p. 346, "HEAD GARDENER" introduces this subject, which is unquestionably an important one, in an excellently written letter. Abstractedly considered, the subject of extra work in gardens—that is, work done after the regular working hours—ought not to be expected, much less enforced, without an equivalent of extra pay being granted. On that point I quite agree with your correspondent; but on page 283 I was considering a special and exceptional case, and I endeavoured to derive a lesson therefrom that possibly might be useful to others who might have a "supreme contempt for vegetable and fruit gardening," and yet whose first thought is to rush off at six o'clock to read novels and poetry. If "HEAD GARDENER" can defend such a practice as indulged in by such sentimental individuals, I have simply to say that I, as a head gardener of some years' standing, am quite unable to do so.

I am aware that many head gardeners expect the young men under them to work "over-hours," and at the same time regret that they cannot give them extra money for their labour; but those men who are the most willing to work at such times usually gain other advantages that prove of considerable value to them. It is not men who are ever watching the clock, and who work after a given hour grudgingly and grumblingly, that have made British gardening what it is. Like "HEAD GARDENER," I learned my business by the "sweating process;" and I have a distinct recollection of working during hundreds of hours willingly and cheerfully when I knew that extra pay could not be granted me; but I knew also that the gardener had done his best towards obtaining it, and that fact no doubt made work the more easy to me. I have also a further recollection of some of my *confrères* refusing to work under these circumstances; and when I look at the position now occupied by the learners of my youth truth compels me to state that not one of those who can be best described as rigid six o'clock men ever attained to good positions in the gardening world, but some of them became soldiers and others are labourers. Of the real, free, willing workers scarcely any have failed to win for themselves appointments of trust and tolerably lucrative, while two at least fill situations that are regarded as prizes in the gardening world.

As a rule it is not the employers who expect young men in their employ to do overtime work for which they are not paid. Many gentlemen will not incur any increase of expenditure for labour. A gardener must do the best he can with the means at his disposal, be the seasons what they may. Gardeners, for their own credit's sake and with a desire to see

things in the best possible order, are often impelled to work and to expect their assistants to aid them when other people are resting. I know no class of men who do so much for "nothing," as your correspondent puts it, as gardeners do, but I call it working either for love or for the honour of the craft to which they belong. Certainly I cannot concede that young men who work overtime without actual cash pay always work for "nothing," for many an example tells me that those who were the most willing to work when their services were the most needed were furthering their own advancement, and some of those workers—"slaves" I have heard them termed—now rank amongst the very foremost gardeners in Britain.

I should be heartily glad if a money equivalent could be made to every worthy and willing young gardener for his actual services after the regular working hours, and for some years I have had the pleasure of so recompensing my assistants; but I have known the time when it was not in my power to do so, and I am painfully conscious that there are many gardeners situated now as I was then. Many young men are not only ready but anxious to render assistance whenever and wherever it is urgently required. Unless past experience goes for naught those are the men who will succeed the best, and who will in the future maintain the high character of practical gardening in this country.—A NORTHERN GARDENER.

HAWFINCHES AND BULLFINCHES.

I THINK "WILTSHIRE RECTOR" is in error in thinking the hawfinch does not breed in this country. I have always understood that it breeds pretty commonly—in England at least. For the last five years to my knowledge one or two pairs have bred in the pleasure grounds here, high up in a Scotch Fir once—the only time I have found out their nest, but I have seen the young ones every season. Last year I found one young bird dead on the lawn, and in 1877 I caught three young ones after they had flown and caged one of them to see if I could rear it, placing the cage in a tree near where I found the birds, hoping that the old birds would feed it. The hawfinch is a very shy bird, however, and though the cage was in an unfrequented part of the grounds they must have forsaken their progeny, for on the morning of the second or third day I found the bird dead in the cage, apparently starved to death. The same season three old birds were caught in a net on the Pea rows, where they had been doing much damage for some time. But we do not wage war against them for these reasons, and hope to see them increase. In some parts I am told they are quite plentiful, but I never thought they were gregarious, like the starling, as stated by Mr. Gardener. As to the bullfinch, I may state that no crops of Gooseberries, Currants, and similar small fruits have been gathered for many years by the cottage gardeners in our neighbourhood owing to the destruction worked by bullfinches alone. They have never been known to be so scarce as this season; in fact, few or none have been seen, and the consequences are small fruits never promised better. Not a bud appears to have been touched in the garden here, but for years back we have been at both much trouble and expense in protecting the trees, and not always with success. The assertion of your correspondent, "J. R. S. C.," that the bird attacks fruit buds in quest of insects is, I think, disproved by the fact that no insects infest the buds of some trees that they patronise most—the Black Currant for example. In a discussion which took place in the local papers here a few years ago between an enthusiastic naturalist and a horticultural enemy of the bullfinch, the former, I remember, was sorely tried because he could not discover the insects that the birds were supposed to be after, but he was obliged to admit that the crops of several birds "shot in the act" were crammed with plump buds simply shelled of their outer scales. It would be well if some of our professed ornithologists were as practically acquainted with the subjects on which they write as your correspondent the "WILTSHIRE RECTOR." It was a reverend naturalist of considerable repute who, in giving evidence previous to the passing of the Bird Act, stated that the reputed destructiveness of the bullfinch had no existence except "in the ignorant prejudices of gardeners!"—a statement which showed that the witness was utterly ignorant on a subject about which he professed to be well informed.—J. S. W., *Wortley, Sheffield.*

I CAN assure your ever-welcome correspondent, "WILTSHIRE RECTOR," that he is labouring under a mistake in supposing that hawfinches do not breed in this country. We know, very frequently to our cost, that they do so at this place. They generally select some of the tall old Apple or Pear trees in the orchard to build their nest in, but what they feed upon during incubation I know not, as I have never observed them destroy the buds of fruit trees. As soon as the young are ready to fly, however, the old birds make sad havoc with the choice Marrow Peas, and the celerity with which they will rip up the pods with their powerful beaks is somewhat astonishing. Sparrows and tomtits are very destructive, but a pair of hawfinches will do more execution in an hour than a dozen sparrows. Fortunately they are very shy birds, and a little perseverance in shooting at them soon scares them. I am inclined to the belief that the sexes separate during the winter, in the same manner as chaffinches, as during the last severe winter one of my men caught two splendid cock birds in a wooden trap cage, but we saw no signs of the hen birds. We are generally pestered with bullfinches, and wage war against them whenever they appear; but the tomtits which destroy so many Pears in the autumn are more difficult to deal with. To secure their nests at breeding time is the best remedy, as the little scoundrels are so prolific that half a dozen nests will stock a whole place.—JOHN COX, *Redleaf.*

NOTES ON VILLA AND SUBURBAN GARDENING.

BEDDING PLANTS.—The process of hardening off all kinds of tender plants intended for subtropical bedding should be done with great caution, as to transfer them at once from heated structures to the open air will give them a very severe check, but if gradually exposed to light and air they continue to grow and retain their natural habit and colours. Amateurs and others are often perplexed at this time how to provide room for the numerous plants that crowd the houses. Some of the hardier plants, such as Lobelias and Pyrethrums, will do well planted out under a south wall in prepared soil, and can be lifted and transplanted at pleasure, thus dispensing with both boxes and pots. Alternantheras can also be most conveniently transplanted without having been previously grown in pots, and the most popular plan is to prepare a moderately hot dungbed covered with a layer of soil, into which the cuttings or small plants are dibbled about 4 inches apart. When the plants are established gradually harden them off, and as the weather becomes mild and settled the lights or other temporary coverings may be removed; and when the plants are required they will be dwarf, bushy, and finely coloured, and well furnished with small fibrous roots. Mesembryanthemum cordifolium variegatum, Coleuses, and Iresines are best transplanted from pots, and should be well hardened and established before planting out. Bedding-out in most localities is best deferred until the end of the month. Calceolarias, however, Echeverias, and Sempervivums may be permanently planted, and the beds prepared for receiving Geraniums, Verbenas, &c., leaving the more tender plants until last.

CUCUMBERS.—Where growing in houses and frames the plants are mostly well established, and require plenty of water both at the root and overhead. Ventilate freely during hot mornings, and close the frames, &c., early in the afternoon. Continue to cover up dung frames with mats every night, as this will prevent the temperature from falling too low on frosty nights. Add more soil to the mounds where the roots have begun to appear on the surface. A very good plan is to cover the bed about 2 inches deep with a mixture of light loam and well-decomposed manure.

Ridge Cucumbers may be grown successfully in most dry and warm soils. The usual method of growing them is to make a trench about 2½ feet wide and a foot deep, placing the soil on one side; then fill the trench with well-seasoned hot manure, grass mowings, or any substances that will supply an artificial warmth for a time; let this material rise about a foot above the surface, and on this place the soil that was first taken out of the trench. Plants that have been previously hardened may be planted out and protected with handlights at night until established. Vegetable Marrows also thrive well when treated in a similar way. If handlights cannot be obtained flower pots may be employed to cover the plants for a few nights. Liberal supplies of water to the roots will be necessary during hot dry weather.

TOMATOES.—The demand for Tomatoes has become very great, and they are now grown in large quantities to supply the markets both at home and on the continent. No garden however small need be without them, as they are easily cultivated, especially thriving in a rich and well-pulverised soil, but they require a warm situation. Spaces on walls are certainly very desirable for the plants, but are by no means essential. The great secret of success is to have well-established plants to commence with, then place them in a warm situation, support them with sticks, and keep them well stopped above the blooms; this admits plenty of light and air, and enables them to ripen an early crop. Late-fruiting plants are almost useless in this country, for if the fruits are not ripe before the temperature begins to fall in the autumn

they are generally attacked by disease, and the whole crop is destroyed.

Dwarf Kidney Beans and Scarlet Runners.—The main crop of these should be sown at once; they are generally safe when sown about the 10th of May. The dwarf or French Bean is most suitable for small gardens, requiring no sticks, and may be grown in rows from 18 inches to 2 feet apart. Canadian Wonder and Negro Long-podded are well known and reliable varieties; the first produces pods of an immense length, but is later in bearing than the latter-named variety. No vegetable withstands drought in summer better than these dwarf Beans. Champion Runner Beans grow very tall and require strong supports, but their productiveness well repays the trouble and outlay. These are also very useful for covering palings or unsightly buildings, and an ornamental as well as a useful screen may be rapidly formed by sowing them in a rich well-prepared soil. They must be mulched and well watered in dry weather, otherwise the flowers do not set freely. Market gardeners make a point of growing them without supports, and whole fields of them may be seen planted in rows about 3 feet apart.

Roses.—Very slowly have these started this season. Bleak north and east winds with frequent frost has kept them very late indeed, and we doubt very much if there will be any Roses fit to cut by the dates fixed for the earlier Rose shows. Notwithstanding these drawbacks the plants are for the most part breaking well, the growths are short and sturdy, and apparently quite hardened to the severity of the weather. A keen look-out must be kept for the caterpillar, which curls itself up in the young and small foliage, and finally devours the flower bud; hand-picking is the only safe remedy. Those who cannot give the trees a mulching of manure we advise to sprinkle the soil well with blood manure (which can be purchased at a moderate price) when it is likely to rain. We treated some last season in this way, and the improvement was considerable both in their growth, foliage, and bloom.

Violets.—These may now be shaken out and divided into single crowns, removing all runners, and plant them singly in well prepared ground, planting them about 9 inches apart. They will if attended to during the summer make fine and useful plants for lifting in the autumn. The Czar, Neapolitan, and Lee's Victoria Regina are amongst the more popular varieties.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Cutting Asparagus is an operation now requiring almost daily attention. Where Asparagus is grown upon the trench or blanched system fine soil or sand must be placed over the crowns so as to blanch the heads to a length of 6 or 8 inches. When cutting for use the soil should be drawn aside so that the other heads may not be destroyed, replacing it afterwards. Where green Asparagus is required the crowns should not be covered deeper than from 3 to 4 inches, otherwise there is more stem left uncut than in the blanched state, which is only wasting the strength of the plants. Any plants that will be required for forcing should be cut from as little as possible, or the roots will be so weakened and the growth matured so late as to render them unfit for early work next season. Sow late Peas in well-enriched ground. Few varieties excel Ne Plus Ultra, Telegraph, and Culverwell's Prolific as tall varieties, and Veitch's Perfection, G. F. Wilson, and Omega as medium-growing varieties. Let the most forward of the Celery plants be planted out after being hardened-off. Celery sown early in March can be pricked-out in the open ground, choosing a sheltered situation, and making-up beds of rich fine soil 3 inches thick. Shade the young plants from bright sun until established, and keep them well supplied with water. Seed beds of Broccoli, Cauliflower, &c., will require attention to prevent the ravages of slugs and the Turnip fly. Dust the plants when moist with dry wood ashes or quicklime. Attention will also be required to ward off the sparrows from Peas, soot being useful. As Potatoes advance in growth keep the soil drawn up to the haulm, hoeing previously to check weeds; and if cropping between the rows with Brussels Sprouts, &c., is intended, fork the spaces between the rows. A moderate earthing only should be given to early crops of Potatoes, as it tends to retard the crop, and should only be practised to prevent the tubers becoming green. The Cauliflowers raised in heat will be hardened off and fit to plant out, also early-sown Brussels Sprouts. Plant both without further delay, also the late thinnings from handlights and frames. Provide rich soil for Cauliflowers under handlights, and supply water or liquid manure liberally. The lights may be removed, utilising them for ridge Cucumbers and Vegetable Marrows. Let the early crops of Turnips be thinned out before they become drawn, watering in dry weather. Make another sowing in shallow soils upon a north border. A break in the succession of Radishes and Lettuces can only be prevented by frequent sowings, observing in the case of Lettuces to sow in drills and avoid transplanting. Spinach running quickly should be sown frequently, taking a row or two between the rows of Peas at each sowing of the latter will keep up the succession. Let there be no delay in pricking out Cauliflowers, Brussels Sprouts, Savoys, &c., sown at the base of walls, as soon as they become fit, and planting out Lettuces in rich soil in open situations. A sowing of Endive may be made if it be wanted very early, but the end of the month is usually soon enough; sow it in drills, and thin out preferably to transplanting, which causes the plants to run. If it be necessary to make another sowing of Parsnips and Carrots it should be done now, as some people do not like the roots when large, but prefer them of moderate size; besides, the later plants keep better than the earlier. The stems of Brassicas going off should be removed, as to leave them only impoverishes the soil and has an untidy appearance. Let the vacant ground be at once dug up so that it may be sweetened, such ground will then be available for Peas, Celery, French and Runner Beans. Mulching is a commendable practice in vegetable culture, especially in light soils, as it preserves an equality of moisture at the roots, which is so desirable to secure the vigour of the plants and the staying qualities of the crop. A mulching of 2 to 3 inches thickness of decomposed manure to such crops as Globe Artichokes, Peas, French and Runner Beans, Cauliflowers, or indeed any crops that admit of its application, acts very beneficially, and is the best way of applying manure in summer; but it should not be applied until the soil is well warmed by the sun, and is preferably preceded by well loosening the surface and affording a good watering. Leeks that have been forwarded in heat should be planted out in well-manured trenches as for Celery, by which monster blanched stalks are had. The productiveness of Rhubarb is improved by watering liberally with liquid manure; guano water, 2 ozs. to a gallon, is most stimulating, well repaying the expenditure and labour.

Carrots in frames will require liberal supplies of water, drawing every alternate plant as they become large enough, so as to afford those left every advantage. Do not allow Potatoes to want for water, and draw the lights off by day, utilising the frames or pits as they become cleared for Cucumbers or Melons. Harden off Tomatoes preparatory to planting them out of doors, which may be done shortly against walls, and in the open ground towards the end of the month. If the season prove favourable they do well in rows about 4 feet apart, with the plants 3 feet asunder and secured to stakes. Plant out when convenient Vegetable Marrows, Ridge Cucumbers, and Gourds under handglasses, forwarding in pits Capsicums and Egg Plants.

HARDY FRUIT GARDEN.

Apricots have set remarkably well, and the growth is very healthy. All shoots not available for laying-in should be stopped at the third joint with a view to secure spurs close to the wall, and this will tend, by admitting more light and air, to the production of solidified growth. Thinning should commence early, especially where fine fruits are desired, removing that badly placed and those not disposed to swell freely. Leave, however, a sufficiency to meet probable requirements for tarts, but not to such an extent as to interfere with the crop retained for ripening, for by overcropping in the earliest stages fine well-swelled fruit can never be obtained. Peaches and Nectarines also are setting well and growing strongly. Do not neglect disbudding, looking over each tree frequently, removing a few growths each time; and when the fruit is fairly set and on the swelling, if there is any trace of aphis syringe thoroughly with tobacco juice diluted with six times the quantity of water, or nicotine soap 2 ozs. to the gallon of water. Plums, Cherries, and Pears have abundant strong blossoms, and will no doubt set well; but means of protection should be at hand in case of frost, as wall fruit should never be trusted to the tender mercies of the weather. Keep a strict watch for caterpillars, as they soon impair the health of the trees and disfigure or destroy the fruit. An abundant crop of Gooseberries and Currants appear assured, and though caterpillars may not have been seen as yet the bushes should be frequently examined, and whenever the caterpillars are found dust them with freshly ground hellebore powder on a calm evening or early morning whilst the bushes are wet with dew. Vines, like everything else, are late in starting; those against walls will require to be disbudded shortly, and in case of mildew appearing dust with flowers of sulphur. Strawberries will be late, but the trusses are growing strongly. Remove all weeds, and mulch at once between the rows and plants with fresh stable litter, which will be washed by rains and render it suitable for the ripe fruit to rest upon. Strawberry plants that have been forced may be planted out in the open quarters about 2 feet apart every way, making the soil firm about the balls and giving a good watering. They will afford some fruit late this season and an abundant crop next, after which they should be cleared off the ground. Mulch recently planted fruit trees with rather short manure, giving a good watering if necessary, and if the water is applied a little warmer than the soil it will be an advantage.

FRUIT HOUSES.

Pines.—Changeable weather necessitates careful attention in the cultivation of Pines, especially as regards plants with the fruit in an advanced condition, a moderately high and moist temperature being necessary to their well-being, which conditions render them to some extent more susceptible of injury, the effects of sudden outbursts of sun telling disastrously, especially upon the

crown, which is not infrequently scorched if the ventilation is not carefully attended to. Large well-finished fruits are only to be obtained by strict attention to details, especially when the plants are cultivated in pots. Watering will require attending to once a week, but indiscriminate periodical waterings should be avoided, not affording it unless required, and then liberally. Plants that have heat at the roots by means of hot-water pipes need more water than those having the heat furnished by fermenting materials; the former should have a supply as often as required, on every occasion mixing a little guano with the water; 1 lb. to twenty gallons of water is a suitable quantity. Admit air at the top of the house, and maintain the temperature during the day at 80° to 90°, closing at 85°; but unless it be desirable to enlarge the crowns do not entirely close the house. Fire heat must be employed to prevent the temperature falling below 70° at night and 75° in the day, the bottom heat being kept at 80° to 90°, as with the bottom heat steady a few degrees variation in the atmosphere is not of great consequence. Syringe the house and plants two or three times a week, according to the weather, and maintain the atmosphere in such a condition as is likely to secure the perfect development of the fruit.

Melons.—Directly any of the fruits begin to change colour for ripening water must be entirely withheld as regards the atmosphere, and nearly so at the roots, and if the temperature be increased 5° it will tend to heighten the flavour. If there be any trace of red spider the pipes should be coated with sulphur, but not very thickly, and it should be also dusted over the foliage. To accelerate the ripening withhold water and increase the temperature as for fruits that have commened ripening, but this must not be attempted until the fruits are fully swelled. "Cracked" fruits usually result from the atmosphere being too close and moist, and the plants prompted by too rich soil being unusually vigorous. If there be the least indication of the fruit cracking cut the Vine about half way through with a knife a few joints below the fruit, which will reduce the flow of sap; at the same time increase evaporation by a drier atmosphere and by withholding water at the roots. Continue to fertilise the blossoms on successional plants daily, pinching off the points of the shoots one or two joints beyond the flower, maintaining a rather dry well ventilated atmosphere. Plants which have the fruit swelling should be syringed freely at about 8 P.M., damping the floors several times a day in hot weather, and only shade to prevent flagging; ventilate freely whenever the weather admits. Fumigate moderately two or three evenings in succession if thrips appear. Prepare for planting in pits or frames as they become cleared of forced vegetables and bedding plants. After the fruit of plants in pits attain to the size of an egg earth up the plants, raising the fruits upon slates, and keep the growths well thinned out. Attention will still be required in renewing the linings to the beds and applying thick night coverings. Pot off seedlings and sow for succession.

Strawberries in Pots.—There must not be any lack of water at the roots of these plants, as when the sun is powerful the fruits are apt to have the skin dried and they do not swell truly afterwards. After the fruit swelling a brisk moist atmosphere is essential to ensure good fruit, supplying liberally with liquid manure until the fruit changes colour, when it must be discontinued and watering less at the roots. Admit air liberally whenever the weather is favourable, avoiding drying currents. Nothing is so advantageous as well thinning the fruit, especially of the large varieties as President, James Veitch (a magnificent fruit), Dr. Hogg, and British Queen, also those very handsome varieties Sir Joseph Paxton and Sir Charles Napier. Sir Harry also attains to a grand size when well thinned, and is one of the finest of Strawberries for forcing. A dish of Strawberries composed of a dozen to the pound is very much more imposing than when the number is much greater. See that late plants are free of aphides, and fumigate if there be the least trace of them. Do not keep the fruiting plants a day longer in the houses than is absolutely necessary, as it is hardly possible to force Strawberries without their being infested with red spider. The plants should be attended to at least twice a day for water, and in bright weather three times, but not watering indiscriminately.

Cherry House.—The Cherries will by this time have stoned, those remaining being safe. If the crop is heavy the quantity should be reduced at once so as to benefit those remaining. Former instructions as to accelerating the ripening of the fruit, and also with regard to sprinkling and syringing remain in force (see last calendar), which are essential to maintain the atmospheric condition in a suitable state, but the border must be seen to, not resting satisfied with the surface appearing moist, as that is often illusory, giving if necessary a plenteous supply, as it is important that the border at this period of growth be thoroughly moist. Precautionary measures will have to be taken by placing some garden netting over the ventilators with the mesh small enough to exclude sparrows and other birds. In ventilating care must be taken not to let the Cherries get wet.

Orchard House.—Apricots are now well set, and where in great abundance they should be moderately thinned, removing the smallest and such as are badly placed for receiving light and air. At the same time strong or superfluous shoots should be removed or pinched back so as to maintain the symmetry of the trees, and look over the trees frequently, keeping the growths moderately thin so as to admit light and air to all parts of the trees. The trees should be abundantly supplied with water whether they are growing in pots or planted out, employing weak liquid manure about twice a week, but this more particularly applies to trees in pots, which may also have the top-dressing renewed. The foliage should be carefully and frequently looked over for caterpillars which feed upon the young shoots and leaves. Peaches and Nectarines have set very abundantly, and are often attacked by aphides at this stage. These pests can be destroyed by syringing with quassia water composed of 4 ozs. of chips boiled ten to fifteen minutes in a gallon of water, adding 1 oz. of soft soap. If the trees are generally infested fumigation is by far the best remedy, and is most effective if done during calm evenings when the foliage of the trees is perfectly dry. The garden engine is also a good means of keeping down insects, and should be employed every morning, for trees that have the fruit fairly set, about 7 A.M. on those days which promise to be fine. Mildew sometimes attacks Peach and Nectarine trees, and after its appearance there must be no delay in dusting with flowers of sulphur. Cherries do not set without free ventilation is provided, and they are very subject to attacks of the black aphis, which yields to repeated fumigation, or syringe with tobacco water supplemented by frequent washings with the garden engine. In the case of an excess of fruit setting it may be necessary to thin it out, doing so carefully with Grape scissors. Fig trees in pots or planted out must not be neglected for water, as, if they are allowed to become too dry, the check will most likely cause the fruit to drop. Ventilation must be carefully attended to, the ventilators being opened at seven to eight o'clock in the morning, unless the winds be very cold from an easterly or northerly direction, when the ventilation may be regulated accordingly, so as not to unduly lower the temperature. The house can be closed at about 6 P.M., but whenever frost is apprehended or a low night temperature the ventilators may be closed earlier in order to maintain the temperature during night or early morning.

PLANT HOUSES.

Amaryllises are deservedly receiving more attention than formerly, for no plants of moderate growth afford such a beautiful display in spring and early summer. Plants that have flowered and require pot room should be attended to at once, for if the young growth is much advanced the plants receive a check. Do not overpot them; 6, 7, or at most 8-inch pots for the largest bulbs are ample, as they suffer if the roots are often disturbed, and they are impatient of light soil and light potting. Good yellow or hazel loam from reduced turves is the best compost with a slight admixture of sand, manure being best given in a liquid form. The plants require to be kept near the glass, and to be abundantly watered during growth, therefore afford good drainage. Clerodendron fragrans is very highly perfumed, and it with C. fallax and C. Kæmpferi will now be showing their flowers. They are often grown in large pots, which only induce large foliage and is quite unnecessary, for at potting much of the old soil may be removed, and if liberally supplied with liquid manure the pot room may be considerably restricted, and that is better than potting the plants in a rich compost.

Orchids.—For some months to come most of the plants will be in an active state, and the temperature should now be increased in the East Indian house, allowing 70° to 90° by day, and 65° to 70° by night. The Cattleya house should be 65° to 75° by day, and 60° to 65° at night; the Odontoglossum house being kept at 60° to 70° by day, and 55° to 60° at night. Shading will become more necessary as the season advances, but it must be employed in such a manner as not to exclude air, the shading being kept at about 3 inches from the glass so as to allow a free circulation of air. Lælia majalis, however, should be grown in the full sun and air, otherwise it flowers very shyly. Zygopetalums may now be repotted. Stanhopeas should be examined frequently, and if dry they should be well soaked in tepid water, renewing the moss, &c., of those that have flowered and are starting into growth. Cymbidiums requiring repotting should be attended to at once; they succeed best in rough peat with some small lumps of charcoal, affording good drainage, as they require abundant supplies of water. In the East Indian house Aërides, Phalænopsis, Saccolabiums, and Vandas must be kept constantly moist, and their foliage clean by frequent sponging with clear water. Cool Orchids will require very little fire heat for the next four months, the difficulty during hot weather is to keep them cool enough—a lean-to house facing north or east is far preferable to one facing south or west. Some require rather more warmth than others and should have the warmest end of the house, such as O. citrosmum, O. hastilabium, and O. nævium, also Lycastes, but Masdevallias should be grown by themselves at the coolest end of the house. As the plants go out of bloom repot those that require it. Any unhealthy plants should have the compost shaken away and then be washed in tepid water, and not be potted in too large pots.

TRADE CATALOGUES RECEIVED.

F. & A. Dickson & Sons, Chester.—*List of Bedding Plants.*

James Veitch & Sons, Chelsea.—*Catalogue of Novelties for 1879, and List of Bedding Plants.*

W. Bull, King's Road, Chelsea.—*List of New and Rare Plants.*

Dickson & Robson, Old Millgate, Manchester.—*List of Bedding Plants.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

NOT EXECUTING ORDER (*J. H.*).—No tradesman ought to vary from the order given until he has previously obtained the customer's permission.

MALFORMED PELARGONIUM LEAF (*J. E. G. G.*).—Funnel-shaped leaves, similar to the one you have sent, are occasionally produced by healthy Pelargoniums. It is a freak of Nature, but we have not found that the peculiarity can be perpetuated by propagation, nor do we think it desirable that it should be.

PLANTS FOR WINDOW BOXES (*Always Learning*).—If we understand your question rightly you require something dwarf and to look well at a distance. Harrison's Giant Musk is dwarf in growth, bright and sweet, and flowers all the summer if watered freely, and occasionally with liquid manure. Blue Lobelia and Golden Feather Pyrethrum are dwarf and telling; Alyssum variegatum, Tom Thumb Ageratum, Gazania splendens variegata, Mesembryanthemum cordifolium variegatum, and Tropæolum Hunteri are suitable. Choose which you think best for your purpose and most readily obtainable.

HARDY PERENNIALS FOR BEDS (*One Perplexed*).—Ajuga genevensis, blue, June and July, 12 inches; Calochortus luteus oculatus, sulphur yellow with brown crimson blotch, 12 to 18 inches, June to August; Epilobium angustifolium album, 3 feet; E. latifolium, rose, 18 inches, July; Geranium Endressi, rosy pink, 2 feet, June to September; Hypericum calycinum, yellow, July to September, 12 inches; Jasonia glutinosa, yellow; Lychnis chalcedonica, orange scarlet, 30 inches, June to August; L. Flos-Jovis, rosy pink, 18 inches; Pentstemon humilis, blue, 6 to 8 inches, July to September; Spiræa Filipendula plena, white, 24 inches, June to September; Veronica spicata, 12 inches, August and September. Probably the best plants for your purpose, however, would be hardy Fuchsias. F. corallina, F. globosa, and F. gracilis are both elegant and handsome, particularly the first-named, and edged as your bed is with Musk would have a charming effect.

PANSIES FOR EXHIBITION (*F. J.*).—*Show Pansies.—Self's.*—Dr. Robert Lee, Duke of Edinburgh, Dux, Erebus, Golden Lion, Leith Walk Beauty, Lochnagar, and Piling Beauty. *Yellow Grounds.*—Alexander Brodie, Allan Ramsay, Capt. Clutie, Defoe, Lochiel, Robert Burns, Senator, and Tom Carlyle. *White Grounds.*—Jane Grieve, Juno, Livinia, Leith Walk Model, Miss Adamson, Mrs. Hampton, The Mede, and Village Maid. *Fancy Pansies.*—Andrew Dougall, Annette, Angus M'Leod, Auntie Cuckoo, Duchess of Edinburgh, Edith, E. J. Lowe, James Grieve, John Currie, Leith Walk Hero, Louisa, Mande, M. H. Miller, Miss Cicely Molesworth, Miss Murray, Miss Wallace, Mrs. Dewar, Mrs. Grieve, Robin, Sunray, Thomas Grainger, William Melville, William Old, and Zephyr. The Show and Fancy varieties are usually exhibited in separate boxes and classes. Nearly all the varieties named were raised by Messrs. Downie & Laird, Edinburgh.

NERTERA DEPRESSA CULTURE (*S. de Jersey*).—The plants are often grown in too much heat, and are also at times permitted to become too dry by fear of their damping; under those conditions they frequently "turn black." One who has been successful in the cultivation of this plant stated his experience in our columns in July, 1876, vol. xxxi., page 22:—"I at first failed with this plant, as many have failed, by placing it in a temperature too high for its nature, when it grew spindly and eventually dwindled away. I was afraid also of watering it overhead lest it should damp-off, but experience has taught me that the plant is not nearly so delicate as its looks imply. I am indebted to the 'Botanical Magazine' for suggestions as to the right mode of culture, having found it there stated to be 'a native of the bleak cold antarctic mountains, and found also on the mountains of New Zealand, and on the Andes from Cape Horn to New Grenada.' It does not grow more than 2 inches high, and produces its Red Currant-like fruits to the number of more than a hundred on a few square inches of surface. For rockwork it is a charming plant, and for the front row in a light and cool greenhouse it is a gem ever to be admired. Its culture is of the simplest, and it is a plant which almost all who own a garden may grow successfully. It is not at all dainty as to soil; but a compost in which it grows with great freedom is equal parts of loam, peat, and bruised charcoal. The great point is to afford it plenty of water—in fact, with good drainage too much water cannot be given to established plants. There can be no better place in which to grow it than a very light frame or pit, the pots to be plunged in ashes. This is very important, for if not plunged the soil will become dry at some time or other, and then the plants will inevitably lose vigour. The lights should be removed from the frame during fine nights, so that the plants can receive the benefit of the dew, and also during the day when heavy showers are not prevalent—not that the rain will do serious injury, but by splashing the soil over the plants they are rendered somewhat unsightly." We have seen the plants referred to, than which none could be in finer condition.

WINDOW PLANTS (*Cottager*).—You have purchased the ornamental-foliaged plants fully too small for your purpose. We assume they are in 5-inch pots. If this is so let them remain in them until the beginning of June, when the plants if growing freely may be shifted into pots a size larger, the shift being only just sufficient to enable the fresh soil being worked down with the fingers or a blunt stick between the compressed roots and the sides of the fresh pots. In the meantime the plants must be watered sufficiently to keep them steadily growing, yet water must be applied carefully; indeed, it is on this operation that success in a great measure depends. It is impossible for anyone to advise how often the plants should be watered. They may require water once a day or twice a week. The soil should never be permitted to become so dry as to be dusty to the touch, or at any to remain so for any length of time, nor should it ever shrink from the sides of the pots. On the other hand it must not be allowed to become pasty or sodden. As soon as the soil crumbles when it is pressed with the fingers apply tepid water sufficiently to penetrate the entire mass of soil, but do not allow the water that drains from the pots to remain in the saucers. Sponge the leaves frequently with tepid water. If this is done every day it will greatly benefit the plants. When the pots are filled with roots clear weak soot water may be given to the plants twice a week. Draw down the blinds for two or three hours when the sun is very powerful. If you repot the plants a compost of turfy loam, peat, and leaf soil in equal parts will be suitable. Choose the best plant for the "single specimen" class. Those you name are quite admissible.

SELECT PELARGONIUMS (*Busy*).—Artist, Closely, Highland Lassie, Corsair, May Day, Prince Leopold, Purple Gem, Ruth, Rosiernsian, Charles Dickens, Charles Turner, and Nabob are amongst the best varieties grown and exhibited by Mr. Charles Turner, Slough. At no time must the plants be crowded. A shelf near the glass in the greenhouse is a suitable position for them until they commence flowering. When the flowers have faded the plants should be placed in a sunny position in the open air to mature their growth. They should then be cut down, and when they have made a little fresh growth, about half an inch, they should be shaken out of the pots and placed in smaller, potting very firmly in good turfy loam with a third of decomposed manure or leaf soil, and some sand to keep the compost open. They must be drained efficiently and watered carefully at all times, and must never be overpotted, nor must the shoots be stopped too frequently. If they are pinched once during the autumn and once in early spring that will generally be sufficient to keep the plants bushy, and they will, with otherwise good culture, produce fine trusses of flowers. The Scillas may remain in the ground the same as Crocuses. We named a Fern for you—Polystichum aculeatum—on page 260 in the number of April 3rd.

CAMELLIA LEAVES SCORCHED (*C. H. S.*).—You are quite right in your surmise. The scorching is the result of the sudden outburst of sun which occurred last week after a long period of dull weather. Where the roof cannot be shaded a light gauze net thrown over the plants will usually prevent the foliage being scorched. Scorching is also accelerated by drought at the roots. The surface of the soil may be moist enough, while that at the bottom of the pots or border may be too dry for the support of the plants when they are making fresh growth.

ALPINE AURICULAS (*W. J. S.*).—The varieties are very good for border decoration, but lack the qualities desirable for exhibition. One of the pips is very large, being quite 2 inches in diameter, and is gay but rough. The two laced and shaded flowers, the one tinted with blue the other with bronze, are the best worth preservation, and by saving seed from them you may obtain still better varieties of the same character. You may attach what names to them you please, but they are not equal to varieties already in commerce.

PALM UNHEALTHY (*T. B.*).—Judging from your description and the leaflet sent us we think the plant is beyond hope of recovery, and is probably by this time dead. It appears to be Corypha australis, which succeeds admirably in a greenhouse temperature. Possibly it had been subjected to frost before you obtained it, and the effects were only apparent when the plant was placed in the greenhouse. The roots are no doubt dead, or the foliage would recover by watering. Do not water at stated intervals, but allow the soil to become dry, and then afford a liberal supply sufficient to thoroughly moisten it.

TRAINING VINES (*F. J.*).—There is no necessity to replace the canes annually. Allow the shoots to grow on both sides of the canes, removing the growths as required to 15 or 18 inches distance apart, and these should be stopped one or two joints beyond the fruit, or if none shows, at the sixth leaf. Keep the laterals stopped to one joint.

DISBUDDING VINES (*C. E.*).—When the Vines have grown sufficiently to show the bunches, the shoots containing the best must be retained, these shoots or laterals, however, not being nearer to each other than 1 foot on each side of the rod, the other and smaller growths being removed. One bunch on each lateral will be sufficient for a crop, and the bearing shoots may be stopped about two leaves beyond the bunch, the growths which subsequently issue being pinched at one leaf. The flower you have sent is of Tacsonia insignis, one of the most beautiful of the genus. We are unable to answer your question relative to the fruit.

SETTING MELONS (*M. M.*).—Train the main growths thinly, stopping them about a foot from the sides of the frame. The laterals producing the female blooms should be stopped at one leaf beyond the bloom. Fertilise the flowers, and when the fruits are swelling thin out those not required, taking care that those retained are as nearly as possible of the same size.

MELONS FOR AUGUST (*J. M.*).—Seed sown now will not, we think, produce plants, which in an unheated frame will yield ripe fruit by the time you name. Much, however, depends on the varieties and the weather, and you can carry out your proposal. The plants on which you must chiefly rely are those to be grown in a heated pit, the seed being sown as soon as possible.

HEATING A GREENHOUSE (*H. T. H.*).—It appears from your letter that from the nature of your ground and the position of the greenhouse a shallow boiler is indispensable, seeing that the top of the boiler must be lower than the pipes in the house; and hence a saddle boiler is likely to be the most suitable. All boilers—saddles, tubulars, conicals, coils—in which the fire space is large enough supply heat for the time you name, and all do their work well

GRAPES SCALDED (*C. W.*).—A chief cause of Grapes scalding is permitting the temperature of the house to rise too high before air is admitted in the morning. The late Mr. Pearson records in his treatise on Vine culture that scalding generally occurred at Chilwell on Sunday mornings, and probably it is the same in many other places. On a recurrence of bright mornings after a period of dull weather especial care must be taken to open the ventilators very early; indeed it is an excellent plan to leave the top lights slightly open all night, increasing the ventilation immediately the mercury of the thermometer commences rising by the action of the sun. See our reply to "CRAVEN."

GRAPES RUSTED (*Craven*).—Rust comes upon the berries in the form of a rough, rusty appearance of their skins, which have, in fact, become thick and indurated. Some think it arises from their being handled, or the hair

of the head touching them; but the disease is often too general to admit of this topical explanation. We believe it to arise from an overheating of the vinery, however unintentional, whilst the Grapes were young, and thus tending to force them to a premature rapidity of growth. Any excessive pressure upon the cuticle, whether from within or from without, causes its thickening. This considerable elevation being succeeded by a sudden reduction of temperature, will almost certainly induce the disease. Probably your vinery has become too hot during the late few sunny mornings, and then the ventilators have been opened to reduce the temperature. Plants in houses will not cause rust if due care is exercised in ventilating the houses. Air should never be admitted to such an extent as to lower the temperature, but only to prevent it rising too quickly and too high.

DESTROYING ONION GRUB (*A Young Gardener*).—A wineglassful of paraffin to four gallons of water applied when the Onions have two leaves and are showing the third will ward off the attacks of the grubs. The mixture must be applied with a syringe, keeping the paraffin thoroughly mixed with the water by occasionally syringing forcibly into the vessel containing it.

VINE-BORDER MAKING (*S. W.*).—If the soil of the border is at all heavy in character or rich, the limestone road scrapings would form an useful addition, but if the soil is light and naturally porous the addition proposed would not be beneficial. This reply was given last week to an "IRISH SUBSCRIBER."

MILDEW ON VINES (*G. L.*).—Dusting the bunches with sulphur will not injure the Grapes, and will destroy all mildew on which it rests.

MILDEW ON PEACH TREES (*R. J. H.*).—First ascertain whether the border is not in some measure dry at some distance from the surface, and if it is apply water copiously. Next ventilate freely, and especially early in the morning, avoiding even a suspicion of closeness in the atmosphere. If you syringe the trees do not do so late in the day, but sufficiently early that they become dry by nightfall. These are the best means of preventing mildew. To destroy it dust the foliage with sulphur, allowing it to remain for a few days.

NAMES OF PLANTS (*A Young Gardener*).—Dendrobium Jenkinsii. (*J. P.*)—1, Epimedium alpinum; 3, Cardamine pratensis flore-pleno; 7, Berberis dulcis. The Sedums we cannot name with certainty from such small specimens. (*J. C.*).—1, A Begonia, apparently a garden variety; 2, Muscari racemosum; 3, Narcissus Tazetta, var.; 4, Leucojum æstivum; 5, Vinca major. (*J. Williams*).—2, Brugmansia suaveolens; 3, Diosma linearis; 4, Omphalodes verna. We do not undertake to name plants without flowers, but No. 1 resembles a Hedychium, and No. 5 Cypella gracilis.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

THE FEEDING AND FATTING OF SHEEP.

(*Continued from page 350.*)

IN fatting sheep in the winter months by open-field feeding, in order to secure a regular supply of roots which shall be in season for consumption as regards ripeness, it is well to consider the sorts of roots which should follow in succession. We recommend for the first feeding in the autumn, when the sheep are first put upon roots, the Grey Stone or Red Mammoth turnips. Either of these are quick growers, but at the same time they are very nutritious and firm in the flesh, for unlike some varieties, such as Pomeranian or Norfolk Whites, they will not get hollow with a liability to rot if they are held on a few weeks longer than was expected. These may well be followed by Hybrid or Scotch Yellow turnips, and will keep good and maintain a supply until Swedes are ripe; in fact, the Scotch Yellow should not be fed off unless the roots are quite ripe, because before that time they are disliked by sheep and have an acid taste. The Swedes will follow, and in ordinary seasons will be ready about Christmas, and these may be continued until the sheep are fat and fit for sale, say the last week in April or the first week in May. To keep the Swedes in the best condition until that time they should either have the stems cut off and remain in the land until the first week in April, or what is better, particularly where hares or rabbits are likely to gnaw them, they may be placed in round heaps and covered with earth in any open and mild weather during winter. We do not advise the growth of mangold for fatting wether sheep for reasons previously given, but when grown they may be given to barren or dry ewes or ewe tegs without injury.

With regard to the number of sheep to be fattened upon the home farm, we recommend that a careful review and estimate of the food grown should be made before making the second or last purchase—not only of roots, but also of the hay and pulse fit for fatting sheep. To assist in arranging the number of sheep it is well to understand what the sheep will eat in any given time; a rough-and-ready rule used to be that ten acres of good turnips or Swedes, of 18 or 20 tons per acre, would fatten one hundred sheep in about four months' feeding. Referring to the quantity of roots which sheep should be allowed per diem, we estimate that Cotswolds and Lincolns would require about 25 lbs., that Leicesters, crossbreds, Hants and Sussex Downs varying from 18 to 20 lbs. each. This estimate can only be an approximation because it will depend upon the quantity of hay, oilcake, or meal given in addition; but there is one guide in root-feeding which should never be forgotten—viz., that the sheep should always eat the food supplied to them before leaving the troughs. This will prove an unfailing guide, because if they leave anything to-day feed with a less quantity on the morrow. The modern practice of feeding sheep for the butcher consists in forcing them on with corn or oilcake in addition to turnips and hay, and when we consider the high price of feeding stuffs of either kind and the low value placed upon roots, it at first sight appears very doubtful whether such a system can be profitable; but it must be borne in mind that such food as beans, peas, oilcake, &c., not only assists in forming the flesh in the animals, but a large residue is left for manure after performing its office in conjunction with roots in the fatting process. In this way whilst reckoning the cost of certain fatting materials the cost of some of them appears to obliterate profits almost entirely, yet these often leave the most valuable manure, and contribute to the requirements of fatting sheep and manuring the land at the cheapest rate simultaneously.

With respect to the most advantageous food to be given there is always likely to exist some difference of opinion even amongst the most experienced farmers, some preferring oilcake, some beans or peas, others oats or barley, but it will of course depend in some measure on the nature of the farm and the respective cost of each article of food at the time. Sheep certainly prefer beans to oats, and where the former are grown on the farm they can be used with the greatest advantage, as they counteract any ill effects which sometimes arise in root-feeding. Beans abound in that principle in which turnips are most deficient, and the latter abounding more in the elements of fat tends to prevent the beans from hardening the flesh too much, which they are otherwise apt to do. Oats and barley are more fattening than beans, but contain less albumen, thus pointing out the peculiar benefit derived from the feeding with bean meal for the Cotswold, Lincoln, or Leicester sheep; for these breeds, being deficient in flesh, should always have a full allowance of the flesh-forming material and a diminished quantity of food which contains ready-formed fat and oil, like linseed cake. If, however, it is desired to use linseed cake in preference to corn or pulse it is the best plan to mix about half the quantity of the best decorticated cotton cake with the linseed cake.

In reference to the quantity of meat produced by the consumption of certain quantities, kinds, and mixtures of food we give an experiment by a competent farmer, who states that sheep fed, in addition to 20 lbs. of roots per day, with half a pint of barley per sheep per day, half a pound of linseed cake, a little hay (say 5 lbs. per day), with a constant supply or access to salt, become fat and fit for the butcher in ten weeks, with a gain in flesh from 33 lbs. to 40 lbs. per head. We have also some other experiments giving the result of feeding several different sorts of sheep, which was in favour of the Lincoln breed. The animals consumed 23 lbs. of roots per day, and rather more than half a pound of oilcake per day, and the average of mutton made was about 1 lb. 10 ozs. per week per head. Although these experiments may have a certain use, still they cannot at all times be made a guide in our daily calling as practical feeders in fatting sheep in the open field, because the results arising from various circumstances will have their influence. There is one point, however, which must have attention—that is, in feeding the long-woolled breeds of sheep, they lay on fat much quicker than the Downs and Down crosses without increasing in flesh or lean meat in due proportion; and as to the statements we have made as to the effect of certain feeding stuffs, we have simply to make our choice of feeding materials. For instance, the long-woolled sheep would require but little cake and more beans, and *vice versâ* in the case of fatting the Downs and Down crossbred sheep. One of the effects and advantages of using pulse for feeding long-woolled sheep has not been pointed out; for although in Down sheep the beans may harden the flesh, yet in the case of the white-faced breeds, which generally handle fat and loose, the effect of pulse-feeding is to increase the lean meat without hardening, but only making the animals whilst alive handle firm as well as fat, so desirable in the estimation of purveyors.

We will now refer to the practical and daily duties of the shepherd in feeding and fatting in the open field. Our rotation of farming has provided for him all the materials requisite except linseed cake. We have capital clover hay of two or three varieties without rye grass. It is important when the hay is not cut into chaff that the rick should be near to the field of roots where the sheep are being fed, so that the hay required may be cut out of the rick and placed in the cages full of the aroma which makes it so enticing to the animals; for when put in cages the sheep will eat nearly all the hay, and make as clean work as when made into chaff, which does not pay for chaffing and cartage from rick to homestead and to field, especially when well-made clover only without rye grass is the composition of the hay. We will suppose

that troughs for root-feeding are provided; these should be of galvanised iron upon wheels about 12 inches deep and 15 inches in width, with one edge of the trough turned inwards, which prevents the animals from wasting the food; there should also be a rod along the top of the troughs to prevent the animals getting into them. The racks or cages for hay are various, and need not be covered unless the best chaff is used in mixture with cracked cake or pulse. Gardener's cutter also must be provided, for we cannot approve sheep when fatting being allowed to eat the roots on the ground, it being false economy in every respect.

The duties of the shepherd are, in the morning on his arrival in the field, to examine his stock, carefully looking them over to see if any animal is unwell. The first food to be given is hay, about 2 lbs. or 3 lbs. each sheep; whilst they are eating the hay the roots should be given, having been previously cleaned and prepared in heaps in advance of the sheep, should be cut with Gardener's cutter; and if the roots are large they should be quartered and cut with a hook into the cutter, so that no long pieces may be found in the troughs, because when mixed with meal great loss ensues if the sheep drop any pieces outside the troughs, which they are very apt to do in dealing with long pieces. As soon as the troughs are baited with roots meal should be strewed over them amounting in the total to one-third of the daily allowance. About twelve o'clock the troughs may be filled again in the same way with cut roots and meal. At about three o'clock the second bait of hay should be given of the same quantity as in the morning, and during the time the sheep are eating their hay the third and last bait of roots should be given in the troughs, and a lump of rock salt be kept in each trough, care being, however, exercised, whenever the food is given, that the sheep be kept at a distance whilst the troughs and cages are being filled, so that each sheep on coming to the troughs shall have a fair chance of obtaining its share of food, which they can then do at all times if sufficient troughs, &c., are provided. It will be noticed that as the hay is given twice a day, and the roots with meal three times, there will be ample time for the sheep to lie down and digest their food, hence the necessity of regular times for feeding. It may be asked why we enter into such minute particulars as to feeding, &c. Our reply is, that we write for the instruction of novices who have had no opportunity of learning the details. We had intended to refer to the grazing of sheep upon pasture land, and also the systems of house feeding; but these matters must be deferred until a future opportunity.

WORK ON THE HOME FARM.

Horse Labour.—This, having been delayed in consequence of the continued wet weather during part of the month of April, is again in arrear, and in many cases it will not be easy to fetch up the arrears of tillage work on the fallows. The last work on the fallows in preparation for mangolds should now be completed, and to save time if the land is clean we prefer to scarify or drag with the self-lifting drag made by Messrs. Howard, instead of ploughing; besides which if the weather should suddenly set in dry after the late showery April the land would be too harsh, and require a lot of tillage to make it sufficiently fine after being ploughed, whereas the land may be worked down fine and drilled simultaneously with the scarifying. This treatment will not only insure a fine seed bed for the mangold, but also insure the immediate vegetation of the seed. The drilling of carrots may be done anywhen until the 20th inst. We have often obtained capital crops after one ploughing where green crops have just been cleared off; in fact this is the surest plan to avoid the weeds, as they never prevail so much after once ploughing as they do after a fallow. The land as fast as ploughed should be worked down fine the same day, and strictly speaking it is a good plan to plough and press, which prevents any turf or roots coming to the surface whilst tilling the land. During any of the summer months we like to drill any of the root seeds after one ploughing when the land is clean in the afternoon of the day of ploughing, as it secures the vegetation of the seed. The manure for carrots should be artificial, because dung laid out and ploughed in just before seeding, although it may be short and decomposed, is sure to make the plants grow coarse with forked roots, therefore we prefer to sow the manure after the presser, and harrow in 2 cwt. of Peruvian guano with damp ashes to prevent its flying, and then to apply 3 cwt. of superphosphate with the seed in drilling. We prefer drilling at 12 or 14 inches apart between the lines, but the hoeing must be done with the horse hoe rigged out in the same manner with three shares as for hoeing wheat, peas, &c. This greatly assists the hand-hoeing, and when the drills are at about 14 inches only the tops of the carrots soon meet and keep down the young weeds, often saving one hand-hoeing. In the event, however, of drilling carrots at 20 inches or 2 feet apart it is better to stetch the ground, because if the manure is sown broadcast before stetching it will be buried in the centre of the stetch. It is best in such case to drill the seed with the hand drill on the top of the ridge, and then roll with the one-horse ball roller; this will bury the seed sufficiently, for it should not be buried very deep. When carrots are grown upon the stetch they may be horse-hoed like Swedes or mangold at any time of their growth, and in this way the weeds may be destroyed in their infancy, and this cannot be done too soon; and if the carrot plants are ever so young they cannot be buried or injured, as they are upon the top of the ridges whilst the hoeing will be going on in the furrows between them.

Hand Labour.—There will still be work to be done in the meadows which are being fed off, as the ant-hills may be cut and carted away and burned into ashes, together with the turves from the trenches and the trench rushes, the latter being cut up with a sharp turf-cutter. They will often die out unless the land is too wet. It will be found that these turves, ant-hills, &c., when burnt will yield a capital lot of ashes, which may be spread upon the poorest parts of the meadow land or reserved in store for drilling in admixture with artificial manures for root crops, &c. The man with the odd horse and cart may now be employed by taking up all the refuse straw, &c., the remnants of corn ricks, &c., and drawing to the farmyard for littering pig pens, &c. As the summer advances, in dry weather all the long straw which comes out of the cart horse stables should not be allowed to remain on the dung heap; but it may well be daily drawn away for littering pig pens, &c., because when the long dry straw is left upon the manure heap, as we have often seen it, it does not decompose, but heats itself dry, and becomes firefanged as it is called—that is, blue-moulded, and the value of dung is much depreciated. Besides this the economy of straw ought to be considered an important point in home farm management, particularly when there is but little arable land attached to the farm. The shepherds will now be feeding their sheep upon the earliest growth of trifolium, and in a few days it will be forward enough to cut up for soiling the horses, dairy cows, fatting cattle, &c. After this is gone the broad clover will be available, and we find that in cutting up broad clover for cattle in the boxes that an acre of this produce is far more valuable than when fed off by sheep; and the wheat crop which succeeds is usually better after clover cut twice than when the crop is fed off by sheep during the summer. Clover during the summer months may be given with great advantage to the horses, the fatting bullocks, the yearling heifers and steers, the calves from six weeks old and upwards, the breeding sows, and store pigs of all ages. The fatting bullocks should have in addition about 20 lbs. each of cut mangold with 2 lbs. of cake meal and 2 lbs. of bean meal each per day. The yearlings in the boxes should get about half the above quantities. This must be considered very cheap feeding when we take into consideration likewise the value of the manure, for an acre of clover cut up in this way will not only feed double the quantity of beef as compared with the produce in hay, but the manure will be very strong and made in large quantities as compared with hay feeding.

NEWS FOR POULTRY KEEPERS.

We have received the new list of the Poultry Club, from which we see that it numbers 196 members. We are requested to state that the rules of the Club and list of members will be forwarded to anyone who applies for them to Mr. A. Jacob, 27, New Street, Vincent Square, Westminster, S.W.

It has been our painful duty of late to record the death of several fanciers. Another is added to the list by the death last week of Mrs. Acton Tindal, which took place at her residence, the Manor House, Aylesbury, in the sixty-third year of her age.

We observe that another poultry farm is in the market. People have vague ideas of the great fatting establishments of the continent, and fancy that vast numbers of birds are to be reared on an acre or two. We can remember an establishment at Bromley where this was attempted and failed, and we predict a similar want of success as likely to be the result of any similar undertaking. Adult birds can with much care be kept in health for weeks, even months, in pens 6 or 8 feet square, but will not breed satisfactorily in them, and to rear chickens in such abodes is next to an impossibility.

We have lately had a most interesting account sent to us from America of a breed of Bantams resembling White Polish. We are told that their owner was occupied twelve years in the production of the variety, and now finds them breed true to points. Certainly English fanciers have not of late been experimental in attempting to produce birds of Bantam size with points of the larger varieties. When we consider what Sir John Sebright effected, having set before him an ideal of a very peculiar type—viz., not only the lacing of each feather, but a hen tail in the male bird, and that in later days Game Bantams have come out as a novelty, we might surely amuse ourselves with a few crosses between Bantams and larger breeds in the hopes of by degrees originating more pigmy varieties.

We also hear that energetic efforts have been made on the other side of the Atlantic to obtain Pekin Bantams from China. As far as we can gather from the description of those imported they are merely feather-legged Buff birds, such as we have seen among Nankins in England, and not of the real Cochin type. This only strengthens the opinion which we long ago formed from the complete failure of English fanciers to obtain fresh specimens of this breed, that it was one peculiar to the Imperial Palace. We

have never heard of any whose descent could not be traced to the one pair taken at the sacking of the Emperor's summer palace.

According to the old saying, "It is an ill wind that blows nobody any good," some good seems to be resulting from the Show of poultry at the Paris Exhibition, in spite of the manifold losses and disappointments which there befell English fanciers. We are constantly hearing of importations of the less famous French breeds, which we believe are in their way not less useful than the better-known Houdans and Crève-Cœurs. La Bresse, Bredas, and Courtes-pattes, either in the flesh or in the egg, have lately been added to several English yards, and we shall watch with interest the result in this climate.

We hear of many failures in the hatching of waterfowl this year. In our own neighbourhood we have observed that the broods of goslings at farms and on commons are small where generally they are large, and Duck-fanciers report similar ill luck. The east winds seem to have dried up the skin of the eggs and so caused the ducklings to die in the shell—*i.e.*, they have been unable to break their way through it. We know of one instance in which a good brood of Cayugas were brought out by judicious help. That the cold winds have had much to do with this state of things we are sure. We hear from a yard in the Isle of Wight, where they would be less severe, of most successful hatchings of Aylesburies.—C.

AMERICAN CHAFF HIVES.

MANY of the American bee-keepers use hives with cavity walls, and fill their cavities with chaff; indeed, they are called "chaff hives" in America. The cold of last winter killed many bees on the other side of the Atlantic. Many were wintered in cellars, and the bees that had the protection of chaff hives came through the winter well, and for a month of last winter we are told the thermometer across the water ranged between 12° and 22° below zero.

In an American periodical—viz., "Gleanings in Bee-culture," I find a letter of Mr. J. H. Townley written to the editor on the 6th of March, 1879. Mr. Townley says, "You have lost twenty-seven stocks of bees. Could not every one of those stocks have been saved if they had been well protected on all sides with chaff? Why will you persist in trying to winter bees without protection when you know that in a severe winter they are liable to be lost, and that protection will save them? I commenced last winter with eighty-five stocks all in chaff. All are alive now, not a stock lost." The editor appends a note to Mr. Townley's letter, in which he says that he "has lost forty stocks, and believes that if he had used fifty more chaff hives in his apiary he would have saved more in bees than their cost."

Mr. M. Stover, Table Rock, Neb., informs us in the same number of the periodical that he "went into winter quarters with sixty-three full stocks all packed in chaff in various ways, and has not lost one yet. I consider the chaff hive ahead of anything I ever heard of both for summer and winter, and if I had only one stock of bees I would have it in a chaff hive as soon as I could get it there." The editor quotes Mr. Langstroth's account of wood hives—some made of thin, some of thick wood—and then says I think they are "not nearly equal to the porous sides of the chaff hives" for good results.

These are weighty words, and will stand to reason on both sides of the Atlantic. The chaff hive is a step, an important step, made in the right direction. We commend the chaff hive to the earnest consideration of all bee-keepers. What can surpass a hive with porous sides, large enough for all purposes, and well cushioned in winter and spring all round with dry warm chaff? Though the English winters are not so severe as American ones I am quite certain that hives with cavity walls—the cavities being filled with chaff or some other light, loose, warm material—would be of great service to both bees and their masters in this country. —A. PETTIGREW.

WHAT IS GLUCOSE?

WHILE many British bee-keepers are bemoaning that they find it easier to obtain honey than to sell it, tastefully labelled jars purporting to contain honey have crossed the Atlantic, and in immense numbers have found their way into the windows of our shops. Besides these, pretty sections containing comb flat and spotless, and likewise of American origin, are now being freely bought and sold.

The flavour of the honey (pure or otherwise we will not stop to discuss), contained in these sections is on all hands allowed to be miserably inferior; but the jars, each contains in the centre a piece of stored comb, which may possibly, if the conscience be sufficiently elastic, excuse but cannot justify the conspicuously printed word "honey" on the side label, although this is qualified by a second announcement which informs us that the jar is filled with a syrup made from starch dextrin, delicately flavoured according to the recipe of a physician. Plainly, glucose strives to impersonate honey, and like many another pretender succeeds in externals, but in that only.

These two novelties, one of which at least is in very large part nothing but commercial glucose, has raised an inquiry as to the nature and origin of this substance and the means of detecting it as an adulterant, so as to protect the honest dealer against the trafficker in shams. Upon this matter allow me to offer some explanations. Pure glucose is precisely like the sugar contained in the grape, so that we might with absolute accuracy call grape sugar glucose; but glucose is not always, nor indeed generally, grape sugar, since it can be prepared from a vast number of sources, such as most kinds of wood, cotton or linen rags, starch dextrin, or sugar taken from beetroot or the sugarcane. The name is derived from the Greek word *glukus*, sweet, and such it always is from whatever source it may be derived. It is, however, not so sapid as cane sugar, since 2 ozs. of the latter would have only the same sweetening effect as 5 ozs. of glucose.

It may be interesting to some to state in few words the means of producing the transformation just indicated. Cellulose, the name given by the physiologist to the substance which forms the vegetable cell wall, is the principal, frequently almost the sole, constituent in paper, rags, and many kinds of wood. Strong sulphuric acid converts the cellulose of these substances into dextrin or vegetable gum, while starch boiled with extremely diluted sulphuric acid is also converted into dextrin, and by continuing the action of the acid the dextrin is slowly changed into glucose. This process may be effected in a number of ways, and is really done whenever we eat bread or a potato. The starch of our food is acted upon by a peculiar substance in the saliva called ptyalin, which rapidly changes the starch into sugar. Starch is insoluble, and cannot enter into our blood or minister to our physical wants but as this change is completed. Strange as these transformations may appear others may follow. Those who may have the South Kensington Science Handbook, "Food," will find at page 33 as follows:—"This glucose being immediately fermentable, may be used to strengthen the worts in brewing, and for the direct production of alcohol. So spirit may be made from old rags and waste pawnbrokers' tickets." There is a grim irony about the thought of the drunkard swallowing in his whisky the chemically altered pawn ticket.

The chemist who deals with atoms explains these changes as a continued addition to cellulose starch or dextrin (which are all alike in composition, but not in the grouping of their atoms) of equivalents of water—*i.e.*, two of hydrogen and one of oxygen, written thus:—H_2O.

Starch	=	Carbon 12	+	Hydrogen 20	+	Oxygen 10.
Add Water	=			Hydrogen 2	+	Oxygen 1.
Cane Sugar	=	Carbon 12	+	Hydrogen 22	+	Oxygen 11.
Add Water	=			Hydrogen 2	+	Oxygen 1.
Glucose	=	Carbon 12	+	Hydrogen 24	+	Oxygen 12.

Thus far we have spoken of pure glucose, to which the commercial article is generally vastly inferior, containing many substances not saccharine and as foreign to honey or even to bee food as lead is to gold.

This glucose is cheap, and is manufactured largely on the continent. It is fermented here to produce alcohol without special flavour, and so called "silent spirit." It enters largely into common sweetstuff. The important question is, Can this substance be converted into honey? No! Honey contains glucose with several other forms of sugar it is true, but in addition it has the uncommunicable aroma which makes it honey. This aroma is the outcome of the dainty flavour contributed by every bloom which has yielded its nectar to the little busy gatherers. The milk of flowers is honey, and the magic of science can never get even a distant approach to it out of rags or starch, although aided by the subsequent additions made in obedience to the recipe of the very cutest transatlantic physician.

Honey adulterated with syrups will of course be sweet; but is this all? Is it not clear that in proportion to the extent of the admixture is the loss in quality and deterioration in value? English honey is infinitely superior to the American specimens in the pretty supers referred to. If the latter be pure, then American honey will have ere long no chance at all in the English market; if adulterated, then honest American producers have been grievously wronged, since the surest step to prevent their future shipments finding purchasers has been taken. Need it be said, Let English bee-keepers lay this also to heart. Honesty is the best policy, and every attempt at adulteration will do much to hinder the development of a cottager's industry, which all kind and good men would like to see extended. I must consider in the future the question of the detection of adulteration and the claims of glucose as a bee food.—F. CHESHIRE, *Avenue House, Acton, W.*

THE FERTILE WORKER.—No. 3.

HAVING noticed Nos. 1 and 2 of Baron Von Berlepsch's observations on Proposition 12 of the Dzierzon theory (see page 354) I proceed to comment on the remainder.

No. 3, "The eggs laid by fertile workers produce perfect drones." This, I think, is pretty generally admitted, but it has occurred to me that the question is very easily solved, and in this way: Let our bee brethren of America who deliberately assert that they have succeeded in mating their queens with "selected

drones" in specially constructed boxes (*vide* Mr. Hasbrouck's description of his method of fertilisation in confinement, page 384, *The American Bee Journal*, 1878), take as their selected drones those bred in a queenless colony from eggs laid by a fertile worker, and let them give us the results. There are in Germany also men who assert they can mate their queens at will; then let them do as I suggest, and they will be solving a problem so far as I can find the solution of which is not yet definitely arrived at.

No. 4, "The drone egg-laying workers are not fecundated." This subject has been closely investigated, and fertile workers dissected by Professor Leuckart Von Siebold, Dr. Donhoff, and the Baron Von Berlepsch, the results being to prove that the fertile workers examined were neither fecundated nor susceptible of fecundation.

No. 5, "The drone eggs found in queenless colonies are all laid by one individual." So says Baron Von Berlepsch, supported by his observations, and what he points out may be easily done to prove this—viz., to divide a colony having a fertile worker into two parts.

My own observations with the North African variety of bee have led me to differ entirely in opinion from the learned Baron. I have long been of the mind that two or more fertile workers may be in a hive at the same time, but to test what the Baron says is an easy proof. I took the colony already spoken of, and on April 18th I divided it equally, placing the two frames with eggs into one hive, and the two without eggs or brood into an exactly similar hive, dividing the flight of bees so that each hive was about equal in strength. I let them stand quietly until the 18th inst., when I carefully examined both hives, using a powerful lens. "I found fresh eggs in both hives." April 20th I examined again with the same result. I could find no queen, either large or small, and there were the freshly laid eggs in each hive. One of these hives has, however, dwindled greatly, and although there are fresh eggs I found two queen cells, one capped. Anxious to see its contents I opened it, only to find therein two drone grubs. The bees of this portion therefore evidently continued to cherish the hope of raising a queen, making the effort with drone larvæ.

But someone may suggest that the eggs in the second hive may have been in the comb and overlooked by me when transferring. But this I prove could not have been the case; for, allowing three to four days for the egg to become a larva, on the 18th of April those eggs should be in the larva state, and on the 20th of April there should not be an egg left that had not changed to a larva; but as it is, at each successive examination—the 18th, 20th, 22nd, and 24th—I find freshly laid eggs.

The very next colony I have queenless, and that developes a fertile worker, I purpose dividing in the same way and noting the result as a check upon the above experience, which may be an exceptional case; but if so it is strange it should occur in an experiment made, I may say, quite on the spur of the moment to test the accuracy of Von Berlepsch's remarks.

No. 6, "The bees of the colony regard and treat the fertile worker more or less as their queen." I have accidentally made a hive queenless, and not having a queen to introduce at the moment allowed a few days to elapse, when finding by the presence of eggs that a fertile worker was there I tried what Baron Von Berlepsch suggests—viz., to introduce a frame of eggs and young larvæ. The bees took no notice of it, and made no effort therefrom to raise a queen. I next introduced a queen, only to find her lifeless body thrown out of the hive. All this time anyone carefully noting the movements of those bees, their activity in bringing in pollen and defending their hive, would say it was in possession of a fertile queen. The fertile worker may therefore be accepted by the bees as their queen.

No. 7, "The fertile workers which make their appearance in queenless colonies are not designedly reared by the bees, but occur casually only, and must be regarded as abnormal or exceptional productions." As I have already remarked, my observations tend to prove that the fertile worker is brought to the front when a colony has suddenly lost its queen, and I have already mentioned the theories bearing upon this point in my first letter.

Proposition 13 of the Dzierzon theory is as follows:—"So long as a fertile queen is present in the hive the bees do not tolerate a fertile worker, nor do they tolerate one while cherishing the hope of being able to rear a queen. In rare instances, however, exceptional cases occur. Fertile workers are sometimes found in the hive immediately after the death or removal of the queen, and even in the presence of a young queen, so long as she herself has not become fertile."

I am quite convinced that so long as a colony has its own fertile and healthy queen it will not tolerate a fertile worker, but as yet I am not able to accept that they will not tolerate one while cherishing the hope of being able to rear a queen. I have had many instances occur of plenty of capped queen cells in colonies that were queenless, yet with fresh eggs laid which ultimately produced drones only, and in such colonies it can hardly be said that the bees have abandoned all hope of raising a true queen.

In the autumn of last year, when about introducing some Italian queens, I was amazed at the rapidity with which the fertile workers appeared. I made a stock queenless, and left it so for some twenty-four hours, then introduced Italian queen in cage. I examined the hive in some forty-eight hours, and found freshly laid eggs. The hive was closed up again, as bees would not accept the queen; and later on examined again, only to find freshly laid eggs, and the unmistakeable four or five eggs in a cell. Each time that Italian queen was released she was attacked, and eventually I had to give up the attempt.

As several instances occurred analogous to this I am led strongly to believe that fertile workers are born semi-developed, and at the first strain on the semi-developed instinct the latent power to lay eggs is called into action, and that this act of laying eggs is accepted by the bees as a proof that this egg-layer is a true queen.

The hand of man has taken a true drone egg from its cell, has fecundated it, and ultimately therefrom has come forth a true worker bee. Man here was guided to the drone egg by its being laid by a true queen in a true drone cell, but I very much doubt if the bees of a colony with a fertile worker know that the eggs are other than worker eggs. Finding the larvæ attain an inordinate size they enlarge the cell by degrees, and that they are ignorant of the true sex of the larvæ I am led to infer by the fact of their treating some to royal pabulum and closing them up in cells of royal size and shape.

Dzierzon and Berlepsch state that a fertile worker may be found in a colony immediately after the death or removal of the queen, and that even in the case of a young unfertilised queen a worker may usurp her functions until the true queen has herself become fertile. With this I quite concur.—ARTHUR TODD, *Algeria*.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. May.	9 A.M. Barometer at 32° and Sea Level	9 A.M. Hygrometer. Dry.	9 A.M. Hygrometer. Wet.	9 A.M. Direction of Wind.	9 A.M. Temp. of Soil at 1 foot.	IN THE DAY. Shade Temperature. Max.	IN THE DAY. Shade Temperature. Min.	IN THE DAY. Radiation Temperature. In sun.	IN THE DAY. Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 7	30.024	42.2	38.5	N.N.E.	47.1	47.2	35.0	98.1	30.6	—
Th. 8	30.066	43.9	39.0	N.N.E.	45.9	51.7	38.0	104.4	28.3	.020
Fri. 9	29.736	50.7	48.0	N.W.	46.0	57.3	41.3	106.6	36.2	—
Sat. 10	30.037	45.0	38.5	N.	45.1	53.1	30.6	109.8	25.4	—
Sun. 11	30.055	45.0	41.9	W.	45.7	48.5	36.7	88.8	30.8	.094
Mo. 12	30.122	55.0	49.0	N.W.	45.9	64.2	42.9	122.4	37.2	—
Tu. 13	30.123	55.2	50.2	W.	48.0	61.4	40.3	112.6	38.4	.060
Means	30.028	48.1	43.6		46.1	54.8	37.1	105.2	32.1	0.174

REMARKS.

7th.—Cold and dull, slight hail showers at intervals, little snow fell; fine moonlight night.

8th.—Dull overcast morning; brighter in afternoon and evening.

9th.—Cold and dull; slight shower in the afternoon, much brighter after 6 P.M.; fine night.

10th.—Dull morning; fine bright afternoon; misty in evening.

11th.—Dull morning; rain commenced 9.30 A.M., continued slightly until 4 P.M.; fine evening.

12th.—Fine with bright sunshine, much warmer day; first sulphur butterfly seen; misty in evening.

13th.—Dull morning; bright and sunny from 10 A.M., dull in afternoon, very slight shower 4 P.M.; fine evening.

Temperature continues low; sharp frost on 10th.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 14.

A VERY fair business has been doing during the week, prices showing a downward tendency owing to the improved supplies of the last few days.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples	½ sieve	2	0	to 6	0	Melons	each	10	0	to 15	0
Apricots	dozen	0	0	0	0	Nectarines	dozen	0	0	0	0
Cherries	℔ lb	0	0	0	0	Oranges	℔ 100	4	0	12	0
Chestnuts	bushel	12	0	16	0	Peaches	dozen	0	0	0	0
Currants	½ sieve	0	0	0	0	Pears, kitchen	dozen	0	0	0	0
Black	½ sieve	0	0	0	0	dessert	dozen	0	0	0	0
Figs	dozen	12	0	18	0	Pine Apples	℔ lb	2	0	4	0
Filberts	℔ lb.	0	9	1	0	Plums	½ sieve	0	0	0	0
Cobs	℔ lb	0	9	1	0	Raspberries	℔ lb.	0	0	0	0
Gooseberries	quart	2	6	3	6	Strawberries	℔ lb.	4	0	10	0
Grapes, hothouse	℔ lb	3	0	8	0	Walnuts	bushel	0	0	0	0
Lemons	℔ 100	4	0	8	0	ditto	℔ 100	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes	dozen	2	0	to 4	0	Mushrooms	pottle	1	6	to 2	0
Asparagus	bundle	3	0	8	0	Mustard & Cress	punnet	0	2	0	0
Beans, Kidney	℔ 100	1	0	1	6	Onions	bushel	2	6	4	0
Beet, Red	dozen	1	0	2	0	pickling	quart	0	4	0	0
Broccoli	bundle	0	9	1	6	Parsley	doz. bunches	2	6	0	0
Brussels Sprouts	½ sieve	0	0	0	0	Parsnips	dozen	0	0	0	0
Cabbage	dozen	1	0	2	0	Peas	quart	3	6	6	0
Carrots	bunch	0	4	0	8	Potatoes, new	℔ lb.	0	6	1	0
Capsicums	℔ 100	1	6	2	0	Potatoes	bushel	3	6	4	6
Cauliflowers	dozen	3	0	6	0	Kidney	bushel	4	0	5	0
Celery	bundle	1	6	2	0	Radishes	doz. bunches	0	0	0	0
Coleworts	doz. bunches	2	0	4	0	Rhubarb	bundle	0	0	0	6
Cucumbers	each	0	4	1	0	Salsafy	bundle	0	9	1	0
Endive	dozen	1	0	2	0	Scorzonera	bundle	0	0	0	0
Fennel	bunch	0	3	0	0	Seakale	basket	2	6	3	0
Garlic	℔ lb.	0	6	0	0	Shallots	℔ lb	0	3	0	0
Herbs	bunch	0	2	0	0	Spinach	bushel	2	6	4	0
Leeks	bunch	0	2	0	4	Turnips	bunch	0	4	0	6

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 22—28, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
22	TH	Zoological Society at 4 P.M.	65.4	42.4	53.9	4 1	7 52	4 13	9 42	1	3 35	142
23	F	Royal Institution at 8 P.M.	67.3	43.6	55.5	4 0	7 53	5 1	10 31	2	3 30	143
24	S	Crystal Palace Summer Show. Linnean Society—An-	67.4	43.0	55.2	3 59	7 55	6 2	11 7	3	3 25	144
25	SUN	SUNDAY AFTER ASCENSION. [nual Meet. at 3 P.M.	65.4	42.9	54.2	3 57	7 56	7 11	11 36	4	3 20	145
26	M		67.4	42.8	55.1	3 56	7 57	8 25	11 58	5	3 14	146
27	TU	Royal Horticultural Society—Great Summer Show.	66.5	44.7	55.6	3 55	7 58	9 42	morn.	6	3 7	147
28	W	Society of Arts at 8 P.M.	68.1	44.4	56.2	3 54	8 0	11 0	0 17	☽	3 0	148

From observations taken near London during forty-three years, the average day temperature of the week is 66.8°; and its night temperature 45.4°.

HOW SHALL WE TRAIN OUR GRAPE VINES?

NO new thing is it that I have now to write about—nothing novel, nothing fresh; for, like the summer pruning of Currant bushes, it was all known long ago by skilled practitioners. "Grape Vine training, sir! why, the thing lies in a nutshell—is simplicity itself. Put up a trellis of stout wire under the roof 14 inches from the glass, tie the branches to it at regular distances, and the work is done." So it is, my good friend, but not to the best advantage for the Vines. By all means regulate the growth as it makes progress, but do not regard such regulation as permanent for the season. Wait rather till the fruit is swelling freely and is almost ready for the scissors; then carefully lower each Vine stem to a distance of at least 2 feet from the glass, and let it remain there suspended from the trellis on stout string. Train the branches from either side of the stem outwards and upwards to the trellis, thus forming a furrow of which the stem is the bottom and up the sides of which the foliage enjoys a double allowance of space, air, and light. Nor does the advantage end here; for, by being trained at an obtuse angle from such a distance beneath the glass, the branches are half as long again as usual, with a proportionate increase of vigour, to the advantage of fruit and foliage.

It cannot be too often repeated that most of the diseases to which Grape Vines are subject arise from a cramped and crippled growth, and hence a method of training that brings freedom of growth to the hands of the owners of the smallest vinery is an undoubted boon. The plan has, I think, already been expounded in these pages, yet it has by no means obtained the extensive adoption which it merits. Let me urge everyone to give it a trial, and in doing so point out that the beneficial result which will be seen this year will be trifling in comparison to that which will follow with equal certainty next year. The reason is obvious; greater vigour of branch-growth, pointing in no uncertain manner to a proportionate root-action—full plump eyes, and a general accumulation of forces for a subsequent season of growth. Do not forget that without this we cannot attain to perfection of size and flavour in the fruit.

Years ago I learned a lesson in the great vinery at Chiswick on the importance of freedom of growth in Vines, and I have seen the same practice equally well exemplified in the small orchard house of a country parsonage, where no attempt at finished or even precision in training was attempted; in point of fact there was very little training at all, the branches being mostly left to ramble about unchecked, care being taken to afford them ample space. The other cultural point upon which stress was laid being plenty of rich soil for the roots, great cleanliness in the foliage, and above all a free circulation of air. So important did the owner consider this to be, that once before leaving home for a few days in summer he actually had the ventilators taken off and carried up into the attic of his house out of reach of his factotum.

I may usefully conclude this note by offering a timely hint or two to my amateur friends. Strive not so much for large bunches as large berries. To secure these thin freely, water freely, let air circulate freely, encourage root and branch to grow freely. To have large fruit generally there must be large supplies of manure and water for the roots. Get that word "large" in your head and keep it there, and make it your standard in everything connected with the Vines. Stem, branch, foliage, and fruit, all should be large, all well balanced. No crowded growth, plenty of space, and instead of restricting the growth to a couple of buds beyond a bunch let every branch extend a couple of feet beyond if you can. Let it not be thought that I wish to advocate a ridiculous extreme in this respect; there must be a limit. Anything, however, is better than branches a foot long, with leaves and bunches more fit for Currant bushes than Grape Vines.—EDWARD LUCKHURST.

ARUM CRINITUM.

To those who see, or think they see, a mystic symbolism in flowers, the hideous and malignant must appear most unmistakeably expressed in this singular Arum. I do not recollect ever having seen it included in lists of carnivorous or fly-catching plants, yet its capabilities in so doing are of no mean order.

The plant under glass grows about 20 inches high, with dark green pedate leaves, which begin to appear about midwinter, and in March the flower stems are thrown up. These stems are rather prettily streaked with interrupted lines of yellowish green and yellow, as is also the outside of the enormous flower or spathe. When full grown this spathe, which in all Aroids is accounted an exaggerated bract, measures about 18 inches in length, and at the broadest part about 10 inches across, enclosing a purplish hairy spadix about 9 inches long. A little above the base both of these are bent so that the open part of the flower forms an acute angle with its stem. The inside surface of the spathe is covered with reddish-brown hairs, somewhat thinly near the edges, but thicker and longer towards the narrow bent throat. A single glance at the arrangement of these hairs reveals at once the purpose for which they are there. They are all placed with their points inward, pointing towards the narrow bottle-like throat of the flower, and lying nearly flat on the spathe. To a fly looking inwards they must present a very harmless will-you-walk-into-my-parlour sort of appearance; but, without being at all sensitive in the same way as the Dionæa, a little disturbance suffices to raise them somewhat, and a thousand bayonets is thus presented in the face of the poor victim, making return impossible. The base of the flower is much wider than the throat, and contains, instead of honey, a brownish substance in a half-liquid state, which gives off, for the first two days after the flower opens, a most powerful and disagreeable stench like carrion. Flies have been less plentiful than snowflakes this spring, yet last week I watched five walk into one of these unsavoury traps within ten minutes, and not one of them managed to get out. On dissecting the same flower to-day I found the remains of sixteen in a half-decayed state.

Although not hardy in Scotland, it is said to succeed in sheltered half-shaded places in the southern counties; but anywhere it deserves a corner in the greenhouse or an old frame in which to unfold its ugliness. The plant from which the above measurements were taken I had from Mr. Ware last autumn; it was then an immense corm-like root 3 inches across or so, and is now flowering in a 10-inch pot.—R. D. TAYLOR.

TOMATOES UNDER VINES.

IN the remarks on "Mixed Cultivation in Houses," page 309, I was surprised at Mr. Stephen Castle stating his Tomatoes did not thrive under Vines. The best Tomatoes which have been grown here during the past two years were the produce of plants in large pots trained against the back wall of a vinery and under the dense shade of the Vines. So well do they succeed with us in this position that I do not desire a better position to grow them in, and for that reason our stock of Tomatoes under Vines this summer will be more than double what it has hitherto been. Were I writing an article on Tomatoes, and advising as to where to plant them, I would say, Fill up all spare corners about the ends of Peach houses and vineries, on back walls, and other positions generally considered unsuitable for anything. In the shade the wood becomes more elongated than in the open; but provided the shoots are constantly kept pinched-in to the flower stems, a good crop according to my experience is the inevitable result. —J. MUIR, *Margam*.

NOTES FROM MY GARDEN—HERBACEOUS PLANTS.

AMIDST the discouragements I experienced from various causes amongst Auriculas, Gladioluses, and Roses during 1878, it is a pleasure to record the delight that I had in my herbaceous plants from the beginning of the season to its close; and in recording my experiences I shall bear in mind the request of my friend Mr. Camm, so that he will be able to find, I believe, a tolerably good selection for his garden if he take note of the names even in this brief paper. I have been intensely amused, by-the-by, at seeing in a contemporary some ill-natured sneers on those who complain of their failures; but when a gardener has a liberal employer who ungrudgingly bestows his money on his garden, when there are plenty of hands and every appliance against the uncertainty of climate, when not a penny has to go out of his own pocket—it is a very different thing to cultivate florists' flowers to the case of an amateur who has to buy all his plants, who cannot, however much he might wish it, bring on his Auriculas by heat or grow his Carnations and Picotees under glass, and who is therefore obliged to make the best he can of adverse circumstances.

In speaking of herbaceous plants I shall include what are ordinarily called alpine plants; and if Mr. Camm has not a rockery I can promise him that he will greatly increase his pleasure by making one, for amongst the earliest flowers to cheer one in the opening year are to be found some of these little alpine gems. Indeed the very first flowers that open in my garden before the Snowdrop or the Winter Aconite, and blooming even in the midst of snow, were some plants of Cyclamen coum, vernum, and Atkinsii. These evidently like a shady place, as on one part of the rockery they have seeded freely, while those in a more exposed place do not by any means look flourishing. Then that very old favourite the Winter Aconite is a charming herald of the approaching spring, and does well everywhere or anywhere in a garden. After these the Alpine Anemones, A. apennina and blanda, with the double variety of our own lovely Wood Anemone, A. nemorosa flore-pleno, are exquisite gems, while Saxifraga Burseriana is one of our very earliest blooming plants; and I have now well established Saxifraga oppositifolia, and where it succeeds it is a mass of lovely mauve-coloured blooms quite close to the ground. A fine herbaceous plant which was in the month of April in great beauty is Doronicum austriacum, throwing up a fine head of beautifully bright yellow flowers; at the same time Triteleia uniflora was in great beauty. Omphalodes verna, so easily grown and so rich in its bright blue, must not be omitted. Then came the curious but very beautiful Trillium grandiflorum; while Gentiana verna where it does well, and that is not often, is a gem about which too much cannot be said. I thought I had succeeded with it, but I have been disappointed. Everyone knows the intense deep blue of the Gentianella (Gentiana acaulis), and it has the advantage that it is as easy to grow as verna is difficult. Some of the newer species of Tulip, such as Greigii and australis, are well worth growing, and when more common will be very effective as groups instead of as single bulbs. There are several beautiful varieties of Primula which have done well with me, independent of the many garden sorts of Polyanthus and Primrose which are now so numerous. Of these I may mention P. nivalis, pure white; P. minima, the very tiniest of its class; P. Auricula, the true alpine Auricula, with yellow flowers and white mealy foliage; P. denticulata, with its large heads of lilac flowers; P. pulcherrima, variety of the same. I have not succeeded with Primula Parryi, which is said to be very fine; it grew indeed very well, but the blooms were very few. P. farinosa is a charming native plant, with tufts of silvery foliage, with yellow-eyed rosy flowers. There are some others which I have not tried, but which are highly spoken of. Now let it be remembered that all these are early-flowering plants, and it will be seen that with them and the well-known Aubrietias, Alyssums, Arabis, Myosotis, especially dissitiflora, and the commoner bulbs—Crocus, Scillas, Hyacinths, Tulips, Grape Hyacinths, &c., no garden need present a cheerless aspect even during such a season as we have just passed through.

Having thus referred to the advantage to be derived from herbaceous plants in the earlier months of the year, I shall note now in alphabetical order such others as I found to do well with me last year, and which I can therefore recommend to others.

Æthionema cordifolia, or Iberis jucunda, is a most charming little evergreen shrub, about 3 inches high, with lovely bright rose-coloured flowers like a miniature Verbena. I have found, however, several of my plants to almost completely lose their foliage in the winter and then perish; but as it seeds freely and the seeds soon germinate I have been able to keep up the supply in this way. Anthericum Liliastrum is a most beautiful spring-flowering plant with white flowers and very fragrant. A. Liliago blooms later, and although not so beautiful is still very graceful. The Aquilegias have received of late years some most lovely additions in A. chrysantha and A. cærulea, the former a beautiful golden yellow, the latter with soft violet-blue sepals and white petals. To these must be added the new hybrids sent out by Messrs. Veitch; one a decided cross between these two, and the other a cross between A. chrysantha and A. californica. Then there was charming little A. alpina. A. glandulosa I have not been able to grow. Mr. Grigor of Forres has a fine variety, but I am told it is difficult to grow down south.

Of all the plants for carpeting a rockery none are, I think, equal to Arenaria balearica. I have had it covering the ground where my Gentianas are planted, and it is now creeping over the stones, covering them with its tiny dense foliage, from which spring a multitude of little white stars an inch above the ground. Next to it I would class Acæna novæ-zealandiæ, which produces late in the season little crimson spikelets all over the plant. Armeria grandiflora, a relation of our old friend the garden Thrift, has fine showy pink heads of flowers, while Armeria juncea is a small-growing alpine with heads of rose-coloured flowers.

Amongst Asters, of which there is a numerous family, and most of which are very useful in the autumn, I had A. Amellus, A. pulchellus, A. novæ-angliæ, and A. novæ-belgiæ. Given one flower of a colour always useful for bouquets there are many others, but I have not as yet grown them; but I was surprised to see at Mr. Parker's nursery at Tooting last autumn how very effective they were. Campanulas are very beautiful, and of them I have grown C. Allioni, a close-growing alpine form, having large flowers on dwarf foliage and growing very freely; C. pulla, a most lovely dwarf Harebell, with stems 2 inches high and flowers of a deep purple colour; C. Raineri, with light blue flowers; C. Van Houttei, a hybrid variety; C. calycanthema, a very tall showy-looking garden variety.

In a moist hollow in my little rockery I have some plants of Cypripedium spectabile, the beautiful North American Lady's Slipper, which are doing admirably and flower well, their very striking blooms being exceedingly interesting. I have added this year one or two other species, but I am afraid that they have come to grief.

Nothing can be more beautiful than some of the alpine species of Dianthus. A good dense plant of D. neglectus is a most lovely sight, covered completely with its bright rosy pink flowers more than an inch to half across scarcely rising above the foliage. My plants of it are well established and did well last year, have not suffered from the winter, and promise

to be in increased beauty this year. D. alpinus is also very beautiful, while the Cheddar Pink and D. deltoides are well worth cultivating; of a different character is Mr. Ware's D. barbatus magnificus, a double dwarf-flowering Sweet William, doing well in the border, and very brilliant in its crimson flowers. Delphiniums form a magnificent background to an herbaceous border, and many of the newer sorts are most beautiful, throwing up spikes of flowers from 4 to 5 feet high of the most lovely blue. I know of nothing in colour to surpass the lovely blue of D. Belladonna, while Madame Henri Jacotot, Wilhelm Pfitzer, Herman Stenger, and others offer the most pleasing variation in blue colour, with single and double flowers, contrasting in many varieties with white centres; for stately beauty I know of nothing in the herbaceous garden to excel them, and in my rich garden soil they have done wonderfully well.

The American Cowslips (Dodecatheon) are well worth growing. D. Jefferyanum is the finest of the section, but D. Meadia is also very curious and pretty, its hanging blooms being exceedingly graceful.

As a dwarf-growing alpine plant, Dryas octopetala, a native, is well worth growing, the foliage being exceedingly pretty, creeping along the ground, and its white flowers with yellow stamens showing well above it. I have found it to seed freely. Erinus alpinus is another pretty dwarf alpine, its dense cushions being covered with rose-coloured flowers. On the other hand the Eryngiums are stately-looking plants suitable for the back row of the border, E. amethystinum being especially showy, throwing up from its thistle-like foliage heads of flowers something like a Teasel, but of a lovely amethyst blue; it is too rigid for cutting for bouquets, but forms a striking object in the garden.

What can be prettier in the early spring than the old and common Dogstooth Violet, with its almost Anæctochilus-like spotted leaves? A newer species, Erythronium giganteum, is also very beautiful, growing from 9 to 18 inches high, and having flowers varying in colour from white to yellow.

I had no idea when I commenced to write these notes that I had so many plants to mention. I have now only reached the letter E; and instead of boring your readers with a long paper shall hope to finish this subject in another issue, especially as I must go and look for slugs, which are determined this year to show their contempt for those misguided individuals who say a hard winter kills them.—D., *Deal.*

FORGET-ME-NOTS FOR FORCING.

I HAVE this spring found the above pretty plants so useful for forcing that I have sent you my experience as to the way I manage them. I tried nearly all the varieties for early work, and find that the two best are Myosotis dissitiflora and M. Weirleigh Surprise. The latter is not only a very distinct variety, but most useful for forcing; perhaps not so showy as dissitiflora, but yet very useful for bouquets, &c., and it is decidedly the best for forcing, not being so liable to damp as dissitiflora. Plants have been blooming since early in February, and have proved valuable in the greenhouse. Last spring I obtained this variety from Messrs. Clibran & Son. I divided the plants and placed them in a north border, which I had previously found was adapted for them. About Christmas they were potted and placed in a cold frame for a few days, and then removed to an intermediate house. A few at a time were taken into the stove, and as soon as flowers appeared the plants were removed to the greenhouse, where they obtained a good share of admiration. I have not tried this variety from seed, but intend doing so another season. M. dissitiflora comes true from seed as far as my experience goes, and plants from either division or seed are equally good for forcing. They may be also employed out of doors with good effect, and a bed of M. dissitiflora mixed with red and white Daisies is very beautiful this late spring, and being in a rather sheltered position has been bright for some time. M. Weirleigh Surprise was discovered, if my memory serves me right, on a rubbish heap at Weirleigh in Kent, the seat of Mr. Harrison Weir, the popular artist.—W. W. B.

PROTECTING SEEDS FROM BIRDS—RED OCHRE.—It is going the round of this neighbourhood that some working man has successfully protected his seed beds for the last three years by throwing over them at the time of sowing some red ochre. Making inquiries for reliable information I find others have tried it with success. In this garden, before hearing of it, we determined to try carbolic powder, and that appears to succeed thoroughly.—W. T. F. M. INGALL, *Greenhithe.*

ROSE REPORTS.

FROM the north, south, east, west, and middle of our tight little island you have had reports upon the doings of the winter among the Roses of the National prizemen and other great growers, but I wonder if you will care to print the experience of a young grower with a small collection within sound of Bow Bells and Big Ben.

I have only lost the whole of the plants of one variety, Horace Vernet; but great has been the injury to the following—Louis Van Houtte, Madame Lacharme, Countess of Oxford, Xavier Olibo, Ferdinand de Lesseps, Duchesse de Vallombrosa, La France, and Baronne de Rothschild, while, strange to say, Marie Baumann and Emilie Hausburg, denounced by Mr. Radclyffe and others as doing badly, look as well as ever. All my Teas, dwarfs on Manetti and their own roots, were well mulched with manure about 3 inches thick, and a similar thickness of cocoa-nut fibre over that. They have all, with the exception of "old Glory," which seems to rather like the frost, been killed down to the fibre, but below that there are plump eyes; so that I hope, if we ever have any genial weather, they will yet do well.

But with the weather we have had I am surprised, not that so many but so few Roses have perished. I have read many references to 1860–61 as a terrible winter to rosarians, but I should like to know if it was as bad or worse than the last one. As I was then of the mature age of five years my recollections of it are rather shadowy.

As regards the future the prospects seem to me rather poor. The 1st of May was ushered in by a thick white frost; yesterday, the 6th, began with rain, and was followed about nine o'clock by a storm that threatened to tear the plants out of the ground, with cold winds and frost at night and some snow. The consequence of all this is that scarcely any of the Roses have pushed into growth.

The following are the most forward—Beauty of Waltham, Edouard Morren (very promising), Alfred Colomb, Charles Lefebvre, Prince Camille de Rohan, Dr. Andry, Reynolds Hole, Antoine Ducher, Marie Finger, and Marie Rady. These are the varieties cut back, but budded Briar cuttings are the most forward and the strongest of all, so that I was surprised at the statement of a correspondent a week or two back that seedling Briars, which I take to be nearly the same as Briar cuttings, were very backward.

Taking all things into consideration I fear that the National Show at the Crystal Palace will be a comparatively poor one, through the fixture being so early; at least I shall be astonished if Messrs. Fellowes, Hole, Pochin, Soames, and the other great midland and northern growers are in it at all, but the Alexandra and the Society's provincial Show I shall expect to see very good. Now that the National Society has, as I was very glad to hear last week, provided a small class for suburban Roses I had hopes of being able to become a competitor; but if this weather continues the Show will have to be postponed for a month, or instead of being an exhibitor I shall have to remain only—A LOVER OF ROSE SHOWS.

CHOICE GRAPE HYACINTHS.

THE varieties of Muscari botryoides and several other well-known species have sufficient attractions to recommend them to all lovers of hardy plants; but beautiful though they be, their charms are surpassed by some new species of recent introduction now blooming at Kew. The best of these is certainly M. armeniacum from Armenia, which has been wrongly labelled M. Pinardi, and lately noted under that name, but Mr. Baker informs us that the latter species is not yet in this country. The first-named has remarkably strong bold spikes, the floral portion being about 3 inches in length; the flowers are large, of a bright dark blue colour, with small white teeth; the leaves are long and dark green. This plant is extremely striking, owing to the great size of its spike. M. Szovitzianum, another pretty species, has a smaller spike than the last named, and the flowers are of a lighter blue with a white limb. It was introduced from the north of Persia a few years back, and was described by Mr. Baker in 1877. The small-flowered Muscari, M. micranthum, is aptly named, for the pale blue tinted bells are diminutive, and the spike also, but it forms a

neat and attractive little plant. This was received at Kew from Mr. Elwes in 1877, who obtained it from a Berlin garden. M. dilutum has a small spike of very dark blue flowers, and was also received from Mr. Elwes. M. conicum bears an obtuse spike of purplish blue flowers and the foliage is fine; it was sent to Kew by the Rev. Harpur Crewe. M. Heldreichii is an attractive plant with conical spikes of dark blue flowers. M. paradoxum received from Dr. Regel, has large acute leaves 1 inch wide and 9 inches long: the spike is massive and densely crowded with dark greenish blue flowers. Several other forms are also flowering, including the old varieties of M. botryoides, pallidum, and album, which were introduced from Italy in 1596; but the most remarkable is M. racemosum neglectum, bearing extremely dark blue flowers on medium-sized somewhat loose spikes. The plants constituting this genus are well adapted for small beds and borders, as they succeed admirably in moderately rich sandy loam, and may be readily increased by offsets from the bulbs. They are in full beauty during April and May.—L. C.

RICHARDIA (CALLA) ÆTHIOPICA.

THE Arum-plant, commonly but erroneously called Lily of the Nile, is a native of the Cape of Good Hope, and was introduced in 1731. It has obtained more popular favour than many plants of less accommodating character, and has long been a favourite window plant, and is now grown in great numbers for decorative purposes, for which its beautiful white spathe and golden spadix, combined with pleasing scent and durability, peculiarly fit it.

The plant is very accommodating, thriving in the window of the cottage or as an aquatic, and by forcing its flowering may be extended over a lengthened period. As a window plant it requires plenty of water during growth and plenty of light, and as an aquatic it should be planted in water so deep that its roots will be safe from frost. Of late years it has been considered that the old method of treating this plant was erroneous—that rest is not necessary, but that active vigorous growth during the summer months is essential to success. I am not certain if this be correct, as I find that the plants which have flowered in winter require rest during the summer; but under the aquatic treatment the suckers are planted in trenches prepared as for Celery, and deluged with water during summer, which of course induces a strong vigorous growth by late summer, when the plants are taken up, potted in 7, 8, or 9-inch pots, and placed in a house with a temperature of 45° to 50°, afterwards being removed as required to a house with a minimum temperature of 55°, rising to 65° or more from sun heat, the plants having abundant supplies of liquid manure to cause them to throw up the spathes strongly. The result is, that from early in the winter flowers are obtained which for durability vie with any other.

That such a mode of treatment is attended with good results is readily granted, but that it is essential is not so apparent; nor does it follow that depriving the plants of a rest is at all conducive to their well-being—indeed, if they are left to Nature they will rest, abundant moisture being accorded, which seems strange treatment for a plant in an inactive state. It is, of course, certain that this unnatural growth secures a certain result, and that plants flowered early will receive a considerable rest before being planted out, therefore any objection on the score of insufficient rest falls to the ground; yet I find that plants which are allowed a long rest flower the most satisfactorily, the plants being placed out in the sun, and an occasional watering only being given to maintain the vitality of the roots. Plants so treated start into growth naturally about August, and being duly attended to with water are in good growth when housed in early October, and may be had in flower by January, placing them in heat in early November—indeed, by introducing batches of plants at intervals to such structures as vineries and Peach houses when forcing is commenced will afford a succession of bloom for half the year. My plants are grown in 12 and 13-inch pots, each affording one and a half to two dozen spathes, are potted only for purposes of increase in turfy loam, and are supplied with liquid manure and top-dressings to promote luxuriant growth.—G. ABBEY.

DEFORMED AURICULA FLOWERS.—In very many instances my Auriculas have produced misshapen blooms—petals at the extremity of the stamens, double pistils, double flowers (Lord Palmerston, to wit), and in two instances blooms quite similar to the hose-in-hose Polyanthus. Perhaps my method of potting has been in fault. I used a compost of three parts grit from a brook, two parts loam, and one part each of well-decayed cow dung and leaf soil. Still the plants are healthy, and they had similar treatment last year. Can any reader of the Journal suggest a cause and remedy?—W. W., *Hertford*.

TUBEROUS BEGONIAS IN IRELAND.

THEIR PROPAGATION, CULTURE, AND PRESERVATION.

THE following observations on those lovely and most accommodating plants may be taken as supplementary to the seasonable and practical article on page 357. The good properties of these plants are varied. They can be forced or grown under cool treatment; they can be bedded-out or grown in a stove; they will decorate a greenhouse or embellish a window; and, as pointed out, when properly hardened off and planted on raised beds they stand strong sunshine, and even drenching rain. I am therefore justified in describing them as most accommodating; and it requires little prescience to describe them, to a very great extent, as the plants of the future. Those who visited Paris and the Exhibition last year must have observed that no bedding arrangement seemed complete without them, and to which I drew the attention of the readers of the *Journal of Horticulture* at the time, *vide* page 347. Owing to the splendid supply of water, and the fine-rose hydrants for its application, those bedded-out in the dust and glare of the Tuileries garden were nearly as healthy and graceful as under the partial shade of those giant trees behind the palace of St. Cloud in the suburbs.

Here several of the local gentry have for the last few years bedded them out pretty freely, the moist climate seeming to favour their growth, the largest collections being those at Birdhill House and Rathronan Manor. The earlier varieties of my plants are already forming for flower, but as it is not yet too late to start the tubers for general purposes I may appropriately summarise my remarks under the following heads:—1, Propagation; 2, Culture; 3, Adaptability; and 4, Preservation by the Tubers.

They may be propagated in the following ways:—*a*, By whole tubers; *b*, By division of the tubers or single eyes; *c*, Cuttings; and *d*, Seeds—giving a few words on each method. *a*, Tubers at present had better be started on a mild hotbed, and when the leaves appear harden off the plants and remove them to the conservatory or greenhouse, or, better, to the shelves of a plant pit. Earlier in the season they might have been allowed to grow on slowly. *b*, When general increase, or increase of a particular variety, is desirable, division—cutting through with a sharp knife—is much the quickest. The tubers being started, each separate stalk so treated will grow in a mild hotbed and sustain very little check. The new plant will bloom as soon as the old if properly treated. *c*, Cuttings are a much slower method of increase than the former, and without sufficient bottom heat will readily damp off, especially if half ripened or from a forced plant. *d*, Those with collections can hybridise and raise their own seed if they possess sufficient technical knowledge to perform the operation. If the female flowers are not properly fertilised it is waste of time to sow the seed. The bees do this, as a provision of Nature, when the plants are grown in beds. The seed can be started on a mild hotbed in January or February, the seed pan being kept moist and covered with coloured glass. Seed I obtained from Germany took a month to germinate. Tilt up the glass as soon as they appear to prevent the seedlings becoming drawn. Seed sown now is too late to produce plants that will flower under ordinary circumstances this year, but they will make nice tubers for the next, or, if protected from frost, grow on into the winter.

2, They are as accommodating to soil as to temperature. What will suit a Tricolor Pelargonium will grow them admirably; and if small pots are preferred, as when grown for window decoration, they will luxuriate with an occasional supply of liquid manure, say from fresh sheep droppings; if strong seldom applied, if weak more frequently. This applies principally to pot culture, though bedded-out plants would need the same underneath the foliage if the soil was not as rich as desirable. Except in starting a high temperature is undesirable, and many do not even start their plants in heat at all. The cooler they are kept the more robust they will be, and the longer they will continue to bloom.

3, Adaptability. I have already considered this point in reference to temperature and soil, and shall only say a further

word as to their suitability for decorative purposes. I have seen them in churches, porches, verandahs, balconies, vestibules—exposed and protected inside and outside—ornamenting with their handsome foliage and gracefully drooping flowers conservatories and greenhouses; in one word, they will embellish any structure. For those purposes they have the following three very desirable recommendations:—They will not suffer as rapidly for want of water (presupposing that they are properly grown and hardened off) as other plants; they are not liable to insects; and no plants will bear removal better from pot to pot, or from the pot into the soil, or *vice versâ*. I should also mention their profuseness in flowering and the length of time the flowers continue.

4, Lastly, it remains to notice the preservation of the tubers for succession. Dutch bulbs deteriorate the second year, so do many others; but Begonias improve. Hence arises a great inducement to their proper preservation. I saw a recommendation in one of your contemporaries to store them in dry silver sand. In doing so last year I lost fully half of my limited collection, and some of the remainder did not start so well as those of some neighbours who kept theirs in their own pots until started. They must never be dried out or desiccated. Once they show signs of shrivelling, or on the other hand putrefying from damp, it would be "love's labour lost" to take further trouble about them. We noticed at Messrs. Veitch's last year that cocoa-nut fibre refuse appeared to be the preserving medium, and if they are removed for convenience or otherwise it would seem to be the best.—W. J. M., *Clonmel*.

SCHIZANTHUS.

Amongst plants for conservatory decoration through the summer months the above-named plant should be grown; as their delicate Orchid-like flowers, which are produced in abundance, associate well with other flowers and add to the variety of plants for such structures. Too often we see much sameness in the plants cultivated to render conservatories gay through the summer. The plants should be as varied as possible, a more striking effect being produced than where numbers of Zonal Pelargoniums, &c., are grown for the purpose. During the time the flower garden and borders are gay with plants we consider it more necessary to make the indoor department as attractive as possible, without employing many plants similar to those bedded out. The Schizanthus is very useful through the early parts of summer for the purpose until they bloom in the borders, their service indoors can then be dispensed with for a time, until frost cuts the border plants off, when a batch will again do good service.

This beautiful annual is very easy to cultivate in pots, and to have plants in full bloom through April and May the seed should be sown in August and the plants grown in cool airy quarters close to the glass through the winter where frost can be excluded. The plants that were raised from seed sown at the commencement of the year will now be growing rapidly, and will form a good succession to those sown in August. Care should be taken if large specimens are required that the plants never suffer by want of pot room. As soon as the roots reach the sides of the pots the plants should be at once transferred into larger pots. The plants enjoy liberal applications of water in all stages of their growth, and a close confined atmosphere should be avoided, or they soon draw up weakly. Fumigation is necessary on the first appearance of green fly. A suitable soil is formed by well mixing rich fibry loam with a seventh part of well-decomposed manure and a little sand. Plants raised from seed sown now, grown in pots plunged in ashes and protected from drenching showers, are very useful for decorative purposes in the autumn.—W. Bardney.

ROYAL BOTANIC SOCIETY'S SUMMER SHOW.

May 21st.

In consequence of the late season the Exhibition, although an excellent one, was not so well filled as usual, only one collection of Roses being staged, and Pelargoniums were entirely absent. Azaleas formed an important feature, and together with Messrs. Jackman's Clematises and Messrs. Veitch's, Bull's, Laing's, and Williams's groups of miscellaneous plants, contributed very largely to the beautiful appearance of the Show as arranged by Mr. Coomber. The afternoon was fine though cloudy, and the Exhibition was patronised by H.R.H. the Prince and Princess of Wales, the Empress of Germany, the Duke of Teck, and a large and fashionable company of visitors.

Stove and Greenhouse Plants.—In the nurserymen's class for twelve plants in flower the only exhibitors were Messrs. Jackson & Sons of Kingston, who were awarded the first prize for excellent specimens of Hedaroma fuchsioides, H. tulipifera, Aphelexis macrantha purpurea, A. macrantha rosea, Clerodendron Balfourianum, Imantophyllum miniatum, Pimelea Hendersoni, Erica depressa, Anthurium Schertzerianum, Boronia pinnata, Erica Victoria, Rhododendron Countess of Haddington, remarkably well grown and flowered. In the corresponding amateurs' class—ten plants—Mr. W. Chapman, gardener to J. Spode, Esq., Rugeley was first with truly superb plants, including Dracophyllum gracile, Ixora Prince of Orange, Anthurium Schertzerianum, Hedaroma tulipifera, Erica Cavendishi, Statice profusa, Azalea indica Mars, Chorozema Chandleri, Erica odora rosea, and Ixora coccinea, some of the plants being 4 and 5 feet in diameter. Mr. J. Wheeler, gardener to Lady Louisa Goldsmid, Regent's Park, was second with good plants of moderate size, Aotus gracillima and Erica affinis being well flowered and in good form.

In the amateurs' class for six plants Mr. W. Chapman was first with exquisite specimens of Tremandra ericæfolia, Ixora Prince of Orange (very fine), Acrophyllum venosum, Erica depressa, Dracophyllum gracile, and Anthurium Schertzerianum, all remarkably good. The second prize was awarded to Mr. James Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, for fairly grown plants, a fine specimen of Azalea indica Iveryana being especially noticeable. Mr. Wheeler secured the third prize for six somewhat small plants.

In the corresponding nurserymen's class Messrs. Jackson & Sons were awarded the first prize for Aphelexis macrantha purpurea, Imantophyllum miniatum grandiflorum, Boronia serrulata, Anthurium Schertzerianum, Hedaroma fuchsioides, Azalea Marie Vervaene, moderately-sized plants and fairly well flowered. This was the only exhibit in this class.

Orchids.—In the amateurs' class for twelve exotic Orchids Mr. James Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, secured the first position for beautiful and well-grown plants of Odontoglossum Roezlii var. albida, O. vexillarium, O. Phalænopsis, Dendrobium thyrsiflorum with ten spikes, Cypripedium villosum with twenty fine flowers, Masdevallia Harryana, Vanda suavis, Cattleya Warneri with seven magnificent blooms, Oncidium Marshallianum, and Dendrobium nobile 4 feet in diameter. Mr. H. Heims, gardener to F. A. Philbrick, Esq., Avenue Road, Regent's Park, was second with good plants, of which the most noteworthy were Epidendrum vitellinum majus, Oncidium ampliatum majus, Aërides Fieldingi, and Cattleya Skinneri. In the corresponding nurserymen's class the first prize was awarded to Mr. B. S. Williams, Holloway, for a superb collection, including Odontoglossum vexillarium, O. Pescatorei, O. Alexandræ, Cypripedium Swaineanum, Vanda suavis, Masdevallia Lindeni, Cattleya Mossiæ with fourteen flowers, Cattleya Mendeli with fifteen fine blooms, Oncidium sphacelatum, Dendrobium Parishi, Lælia purpurata, and Masdevallia ignea. Mr. Henry James, Castle Nursery, Lower Norwood, was a close second with some very excellent plants, the following being particularly fine—Cypripedium barbatum, Dendrobium nobile, and D. Wardianum. Messrs. Jackson and Sons were third with very good but small plants.

In the nurserymen's class for twenty Roses in pots, not less than ten varieties, Mr. Charles Turner, Slough, was the only exhibitor, and was awarded first prize for plants of medium size, but very healthy and well flowered, the colours being bright and good. The principal varieties were Duchesse de Vallombrosa, Caroline Kuster, Princess Beatrice, Capitaine Christy, Souvenir de C. Montault, Madame Lacharme, Royal Standard, Souvenir d'un Ami, Perfection de Montplaisir, Mdlle. T. Levet, Louis Van Houtte, Edouard Morren, and Jean Liabaud.

Azaleas.—In the amateurs' class for six greenhouse Azaleas Mr. H. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, secured, as usual, the premier honours for gigantic and finely flowered specimens, 6 feet high and 5 feet in diameter, the varieties being Georgiana, Exquisite, Criterion, Distinction, Model, and Eulalie Van Geert. The second prize was awarded to Mr. Wheeler for good specimens of Duke of Devonshire, Rosea punctata, Duc de Nassau, Rubens, Stanleyana, and Etoile de Flandres. An extra prize was awarded to Mr. James Child for small but well-flowered plants. In the corresponding nurserymen's class Mr. Charles Turner was first with densely flowered specimens of Duchess A. de Nassau, Etendard de Flandres, Reine des Fleurs, Duc de Nassau, Madame Cannaert d'Hamale, and Comtesse de Flandres. Mr. B. S. Williams was second with good plants, A. magnifica being especially remarkable. In the open class for twelve plants in six varieties in 12-inch pots Mr. Ratty was first with densely flowered plants and well grown. The best were Roi des Doubles, Juliana, Charles Enke, Model, Mons. Thibaut, Crotteriana, and Mrs. Fry. Mr. Charles Turner secured the second prize for a collection of smaller, but also well-flowered plants; Eugène Mazel, Duc de Nassau, Cedo Nulli, Mons. Thibaut, and Roi Leopold being especially good. In the corresponding amateurs' class for six plants Mr. Ratty was first with Apollo, Grandis, Delicata, Marie Vervaene, La Superbe, and Duc de Nassau, very neat and good. Mr. James Child was second with plants of average size, and Mr. Wheeler was third with fair but somewhat loose plants.

In the nurserymen's class for twelve Heaths Messrs. Jackson and Sons were awarded the first prize for small but good plants, the best being Erica profusa, E. mundula, and E. affinis. Messrs. B. Peed & Son were second with larger but looser plants than the preceding; the best were E. ventricosa Bothwelliana, and E. tricolor Wilsoni. In the amateurs' class for six Heaths the only exhibitor was Mr. G. Wheeler, who was awarded the second prize for plants of medium quality.

In the open class for twelve Alpine plants of six varieties Mr. Robert Parker, Exotic Nursery, Tooting, the only exhibitor, was awarded the first prize for Gentiana acaulis, Veronica repens, Saxifraga muscoides purpurea, S. Maweana, Ledum spathulæfolium, and Bellis perennis aucubæfolia—all very pretty and bright.

In the amateurs' class for six exotic Ferns Mr. James Douglas secured first honours for well-grown plants of Adiantum cuneatum, A. concinnum latum, Davallia polyantha, Gleichenia speluncæ, and Dicksonia antarctica. Mr. G. Wheeler was second. In the corresponding nurserymen's class Mr. B. S. Williams was first with enormous specimens of Adiantum farleyense, Davallia Mooreana, Gleichenia rupestris, and G. speluncæ (very fine), Alsophila excelsa, and Cibotium Schiedei. A very good collection.

In the amateurs' class for six fine-foliage plants, Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Sussex, was first with superior specimens, the centre plant—Cycas revoluta—being extremely large and handsome. The others were Croton variegatum, Latania borbonica, Areca sapida, Croton interruptum, and Zamia Lehmanni. Mr. James Ford, gardener to J. G. Meegan, Esq., Windermere House, Norwood, was second with excellent plants, Dieffenbachia picta being remarkable for health and size, also Alocasia metallica; the former was 6 feet high and 5 feet through. Mr. James Douglas was third with fairly good plants. An extra prize was awarded to Mr. Richard Butler, gardener to H. H. Gibbs, Esq., Regent's Park. In the corresponding nurserymens' class Mr. B. S. Williams was awarded the first prize for good specimens of Croton Wiesmanni, Dasylirion acrotrichum, Pandanus Veitchii, Chamærops humilis, and Phormium tenax variegatum. Messrs. Hooper & Co. were second with generally good plants, Maranta zebrina and Cocos Weddelliana being especially noticeable.

The following extra prizes were awarded:—To Messrs. Veitch and Sons, Chelsea, for a beautiful group of new and rare plants, including such beautiful plants as Hæmanthus Kalbreyeri and H. cinnabarinus, Rhododendron Duchess of Teck, Gloxinia Mr. Gladstone, Erythrina marmorata, Anthurium Warocqueanum, Dracæna Goldieana, and many other novelties and attractive plants. To Messrs. Cutbush & Sons for a group which included some very fine greenhouse plants: the best were Correa cardinalis, Polygala Dalmaisiana, Boronia serrulata, and Tetratheca ericoides hirsuta, brightened by several good Azaleas and backed with Dracænas and Palms. To Messrs. George Jackman & Sons, Woking Nursery, Surrey, for a group of twenty-eight Clematises of medium size, but extremely well flowered and tastefully arranged. The best purples were Lord Mayo, Lord Londesborough, Lord Derby, Sir Garnet Wolseley, and Aureliana; the best whites were Vesta, Fair Rosamond, and Miss Bateman; the best tinted varieties, Maiden's Blush, Mrs. S. C. Baker, and Precision. To Messrs. H. G. Henderson & Sons, Pine Apple Nursery, for a large miscellaneous and elegant group of stove and greenhouse flowering and foliage plants and Orchids, the most noticeable being Masdevallia Lindeni, Hæmanthus Cooperi, Gesnera Hendersoni, Blandfordia flammea hybrida, and Sarracenia Drummondii, a pan of the latter being shown with three dozen pitchers. To Mr. B. S. Williams for a beautiful and compact group of stove, flowering, and foliage plants, including many extremely good specimens. We may mention Gloneria jasminiflora, Dendrobium Devonianum candidum, Rhododendron Edgworthii, Anthurium Schertzerianum, and Aërides Fieldingi as remarkably attractive. To Mr. William Bull an extra prize for a very fine group of new and rare plants, in which Odontoglossum vexillarium played a prominent part, Masdevallias and Anthuriums considerably enlivening it. A fine specimen of Oncidium Marshallianum was shown, also good plants of Dracæna Goldieana and Dendrobium suavissimum. Adiantum gracillimum was freely employed as an edging and intermixed with other plants. To Messrs. John Laing & Co. for a pretty group of flowering and foliage plants, including some good Caladiums, Azaleas, Palms, and Dracænas, several fine Tuberous Begonias, and Gloxinias. To Messrs. Hooper & Co. for a group including some good plants, a specimen of Medinilla magnifica with over a dozen fine pendulous inflorescences being remarkably fine. To Messrs. Osborn & Son, Fulham, for a group of Ferns, Palms, and flowering plants, in which two baskets of the dark blue Gentiana acaulis were very showy. To Messrs. Wm. Paul & Son, Waltham Cross, for eight boxes of cut Roses very fine in size and colour. Some of the best varieties were Lælia, Pierre Notting, Star of Waltham, Baronne de Rothschild, Rosy Morn, and Louis Van Houtte. One box was filled with the fragrant Rosa Banksia odoratissima. To Messrs. Paul & Son, Cheshunt, for nine boxes of cut Roses, also very good; Maréchal Niel, Madame Victor Verdier, Gloire de Dijon, Edouard Morren, and Reynolds Hole being in perfection. To Mr. G. Wheeler for a group of foliage and flowering plants. To Mr. H. Hooper, Vine Nursery, Bath, for a collection of extremely good Pansies. To Messrs. Hawkins and Bennett, Twickenham, for a group of Ferns, Pelargoniums, and Lily of the Valley (Victoria) very tastefully arranged. Mr. Boller staged a collection of Succulent plants, and Messrs. Henderson a box of very fine Mimulus blooms.

The only certificates that were awarded when we left the Exhibition were the following:—To Messrs. Veitch for Cypripedium Lawrencianum, with dark labellum and spotted petals, the posterior sepal being striped with chocolate; Cypripedium species with a pale brown labellum, dark petals, and greenish posterior sepal; Doodia aspera multifida, with short pinnate fronds divided at the apex; Polypodium Krameri from Japan, pinnate fronds; Nephrolepis pluma, from Madagascar, a very elegant species; Tillandsia zebrina major, with a spike 2 feet long of closely imbricated scarlet bracts; Erythrina marmorata, with fine marbled foliage; and Dracæna Laingi, foliage light-coloured streaked with red and green. Mr. Heims was also awarded a certificate for Cypripedium Lawrencianum.

NOTES AND GLEANINGS.

THE GREAT SUMMER SHOW of the Royal Horticultural Society which opens at South Kensington on Tuesday next, and continues for four days, is expected to be a display of great magnitude and excellence. The schedule consists of thirty-one classes for plants and cut flowers, and seventeen for fruit and vegetables, exclusive of the special prizes offered by Mr. Bull for new plants, Messrs. Sutton & Sons for Peas, Melons, and Cucumbers; and Messrs. Jos. Davis & Co. for Tuberous Begonias. The value of the prizes offered by the Society is considerable, £76 being allocated to three classes of stove and greenhouse plants in flower, £98 to Orchids, £68 to Azaleas, £82 to groups of miscellaneous plants, and £94 to Roses in pots. Excellent prizes are also provided for Ericas, Pelargoniums, Rhododendrons, Ferns, Begonias, Gloxinias, &c. Owing to the lateness of the season it cannot be expected that all the classes will be filled; yet, notwithstanding, it is certain that sufficient plants will be forthcoming both from nurserymen and amateurs to render the Exhibition a very imposing one. On Tuesday evening a conversazione of Fellows of the Society and their friends will be held, when the Exhibition and the conservatory will be illuminated by electric lights. In addition to these attractions the Queckett Microscopical Club will be present with a large assemblage of microscopes, and the music will be performed by the band of the Royal Horse Guards. On Saturday next, the 24th inst., the Crystal Palace Show will be held, and the Manchester Great Whitsuntide Show opens on the 30th inst.

—— CONVINCED of the practicability of holding an INTERNATIONAL HORTICULTURAL EXHIBITION in London in 1880, Mr. Wills, as will be seen by an advertisement in another column, has obtained the use of a room in the Albert Hall for the holding of a meeting, to which he invites horticulturists of all shades of opinion, by way of obtaining an accurate expression of feeling on the subject at issue. Mr. Wills desires us to say that in the action he has taken his sole object is to give an impetus to the horticultural industry in this and other countries, and to incite additional interest in plants and flowers throughout every grade of the community. He wishes it also to be clearly understood, that he desires to leave the subject in which he has taken such earnest action entirely in the hands of the meeting to take such steps as is deemed necessary towards carrying out the proposed undertaking. The meeting will be held on Tuesday next, the opening day of the Great Show at South Kensington, at three o'clock in the afternoon.

—— MESSRS. KELWAY & SON, Langport, inform us that a thousand plants of CALCEOLARIAS are now flowering in their nursery. They have sent us some blooms from the collection, which are large, finely spotted, and rich and varied in colour.

—— A CURIOUS and attractive dwarf evergreen shrub is MAGNOLIA FUSCATA, a native of China, and introduced to this country in 1789. It rarely exceeds 3 to 4 feet in height, and forms a bushy miniature tree. The blooms have no brightness of colour nor elegance of form to please the eye, being small and dull brown; but they possess a most powerful and pleasing spicy fragrance which can be detected at a considerable distance. Small plants flower readily and may be grown in pots, provided a moderately rich light soil and a greenhouse temperature are afforded.

—— THE ROYAL HORTICULTURAL SOCIETY OF IRELAND'S second Show of the season, which was held on the 15th inst.,

is described by the *Irish Farmers' Gazette* as an excellent one. The cup for the best twelve plants was won by Mr. Westby, and the cup for Palms by Lord Justice Deasy. Azaleas and Pelargoniums were very fine, the prize-winners being Mr. Westby and Mrs. Manders. Roses in pots were well exhibited by Lord Justice Fitzgibbon and the Rev. F. Tymons, and Mr. Tymons also secured the first prize for twenty-four cut blooms with a stand of great excellence. The Maréchal Niels exhibited by Mr. King are described as magnificent. The show of florists' flowers was small; Tulips, formerly one of the leading features of a May Show, being represented by only one stand. Two fine stands of Pansies were exhibited by Mr. Ireland and Mr. Guilfoyle. Tastefully arranged collections of plants were exhibited, not for competition, from the Vice-regal Gardens, and from those of Mr. W. Jameson at Montrose. A very interesting miscellaneous collection was forwarded by Messrs. Rodger, M'Clelland, & Co., Newry. The show of fruit was limited, but good.

—— AFTER a period of over forty years of active occupation as a successful landscape gardener, MR. MARNOCK announces his intention of retiring. Mr. Marnock, who has well won the rest that he now seeks, and which we trust he will long enjoy, has made arrangements with Mr. J. F. Meston to succeed to his practice, and recommends him as a gentleman of acknowledged taste and lengthened experience in all that relates to landscape gardening.

—— WE regret to hear of the DEATH OF LIEUT. ROBERT D'OMBRAIN, the son of our valued contributor Rev. H. H. D'Ombrain. Lieut. D'Ombrain fell a victim to sunstroke and fever while serving in the Natal native contingent in South Africa. Our readers, we are sure, will join us in an expression of sympathy with "D., *Deal*," on the great loss he has sustained by the mournful occurrence.

—— ONE of the finest clusters of flowers of STEPHANOTIS FLORIBUNDA that we have ever seen has been sent to us by Mr. Green, gardener to R. S. Dunbar, Esq., Eagle Cliff, Greenhithe, Kent. The cluster is not so much remarkable for the number of flowers (seventeen), as for their size and massiveness. Some of the flowers have six segments and the same number of sepals, the normal number being five. The plant from which the cluster was cut covers the roof of a stove, and is bearing hundreds of flowers and buds. It is a fine variety of this grand stove climber, and admirably cultivated.

—— THAT exquisite Orchid CYMBIDIUM EBURNEUM may now be seen flowering in several of the large London nurseries. The magnificent flowers have their ivory whiteness relieved by a dash of pale yellow in their labellum, and their fragrance is most delicate and pleasing. It was introduced from the East Indies by Messrs. Loddiges in 1846. Lumpy peat with good drainage must be provided for its successful cultivation, and abundance of water during growth.

—— GARDENS IN IRELAND, writes a correspondent, never looked better notwithstanding the inclement and unpropitious weather. The spring display of Anemones, double Wallflowers, Tulips, Daisies, Aubrietias, Arabis, Nemophila discoidalis, &c., is very brilliant. Roses budded last year have splendid buds already formed. Fruit prospects are good.

—— WE have received the ANNUAL REPORT of the progress and condition of the Botanic Gardens and Plantations of Adelaide, South Australia, of which we must speak in terms of high approval. Dr. Schomburgk, the talented Director, observes that it is his desire to make the annual reports something more than mere records of the condition and operations of the Botanic Garden: and with this view of rendering them more useful, subjects of agricultural, horticultural, and arboricultural interest will in future be included in them. The present report contains among other valuable and interesting matter an excellent essay on the Phylloxera.

—— A CORRESPONDENT writes to us predicting a HOT SUMMER "because" he says, "the summer at the antipodes has been remarkable for its great heat and drought, and the European seasons immediately succeeding generally partake very much of the same character." We publish this statement with a view of testing the soundness of the idea which we know has obtained much credence in a particular district of this country. We are able to submit evidence of the great heat of the last Australian summer, for Dr. Schomburgk's report above alluded to contains the following:—"From the commencement of November the rainfall ceased, except one or two light sprinklings The vegetation would have suffered materially if we had not had intermissions of cool weather for five or six days during November and December, the thermometer showing 70° to 80° in the shade. But in January and February the heat increased. The highest temperature was 113° in the shade and 166° in the sun. In the north the thermometer has been registered 124° in the shade. Such a drought of nearly four months' duration could not but prove injurious to vegetation, especially to more tender alpine plants and those from cool climates. The leaves of the Ash, Birch, Poplar, Oak, and Willows, although standing on the banks of the lakes, have been scorched as if they had suffered from fire, and it has been the worst season for flowers for many years past.

—— IN the PINE APPLE NURSERIES we recently saw a number of extremely fine and healthy Todeas in a cold house where they have during the past winter endured as much as 14° of frost, not only uninjured but apparently invigorated, judging by the magnificent crowns of fronds now showing. The majority was T. superba, but there were also some specimens of T. intermedia. Odontoglossums in the same house were remarkably healthy and fresh. Several interesting and beautiful bulbous plants were flowering, of which the most noticeable were Coburghia luteo-viridis from South America, a new plant, and here flowering for the first time in England; and Blandfordia flammea hybrida with brilliant flowers, which are very lasting. Amaryllises, one of the specialities of Messrs. Henderson, are still beautiful, and Orchids are blooming freely, particularly Masdevallias, large numbers of which are grown.

SOUTH HILL,

THE RESIDENCE OF LYNDSAY WOOD, ESQ.

THIS is one of those small but interesting places with which the county of Durham is studded. Standing on an elevated position on the left bank of the Wear, it commands an extensive view of the pleasant and fertile vale through which that stream winds its serpentine course. Two of the chief objects in view from South Hill are the ancient pile of Lumley Castle, while on the same side of the river as South Hill is seen the well-known Red Rose Vineries; further to the north towering up out of the vale is seen the spire of the classic church of Chester-le-Street. Our visit to South Hill, however, was purely one of horticultural interest. On our arrival we received a hearty welcome from the gardener, Mr. Thompson, and were at once shown over the place.

In a good, light, three-quarter-span forcing house pot Vines trained up the rafters were carrying a crop of medium-sized bunches; but owing to the great lack of sunshine the foliage and wood were not quite up to Mr. Thompson's standard, yet, all things considered, they looked extremely well. In this house a great deal of propagating is done, and at the time of our visit (27th of March) it was literally crammed with cuttings in 4 and 5-inch pots—Lobelias, Iresines, Konigas, Coleuses, Verbenas, Mesembryanthemums, and other well-known carpet-bedding plants. Although carpet bedding is the style that is chiefly carried out here, some idea of the number of plants required may be gleaned from the fact that five thousand Pelargoniums are necessary.

From the forcing we proceeded to a plant stove, where some splendid Crotons and Dracænas were growing; Dipladenias, Clerodendrons, and the usual occupants of stoves were apparently all in excellent condition, and testified to the care bestowed upon them. The vineries, of which there are only two, occupied our attention next, but owing to their being so crowded with plants we came to the conclusion that fruit is only a secondary consideration there. The Vines were just commencing growth, and the strong sturdy growth they are making shows that their culture is well understood. These vineries have lately been re-roofed with more modern and broader glass by the Darlington firm of horticultural engineers, Messrs. Richardson. The old lights having been utilised by building a long span-roofed house for wintering bedding plants, and at the present time it is filled with a fine lot of Geraniums in 3-inch pots, the favourite varieties being Vesuvius, Violet Hill, Charley Casbon, and Waltham Seedling. A range of Peach houses by the Darlington builders, ventilated upon their patent system, next received our attention. The trees are all healthy and young, with stiff hard wiry wood of last year's growth, giving every sign of carrying a heavy crop. In the earliest house the Vines were just setting their fruit, and in spite of the sunless weather there is a heavy crop. The varieties in this house are principally Noblesse and Royal George. In the

later house the same varieties predominate, with the addition of Late Admiral and Stanwick Nectarine. Mr. Thompson speaks highly of Messrs. Richardson's system of ventilating Peach houses, but does not admire it so much for vineries.

At the east side and joining the hall is the great conservatory, a handsome building erected by Mr. Lascelles of London; this house is divided by a partition into a conservatory and stove. Entering from the garden we come into the stove first, the most striking plant being a very large Fan Palm almost reaching to the top of the house. This plant is by no means the only remarkable one in the house, but to speak of each plant individually would fill a volume; suffice it to say that splendid specimens of almost every variety of Crotons, Dracænas, Dieffenbachias, Anthuriums, Marantas, Pandanus, Aralias, &c., fill the house. One splendid plant of Pandanus Veitchii attracted particular attention; the plant is grown in a 12-inch pot, and measures nearly 6 feet in height, and nearly 9 feet in diameter. A fine plant of Aralia Veitchii, also grown in a small pot, is 6 feet high, and is a perfect model of symmetry. At the eastern end of this house is a miniature fish pond well stocked with gold and silver carp and other handsome fish, the warm tints of which contrast beautifully with the rockwork, Ferns, Begonias, and other plants with which it is fringed. The other part or division of this structure is devoted to blooming plants and others requiring cooler treatment, Splendid pyramid Azaleas, a yard in diameter at the base and from 4 to 7 feet high, were very striking. A plentiful supply of bloom was given by Spiræas, Callas, Cinerarias, and the plants usually to be found in bloom at this season. At the end of this portion corresponding with the fish pond in the other division is a bed of Camellias planted out, which were densely covered with blooms, and from which Mr. Thompson informed us he had cut some hundreds of flowers during the winter. In the summer large hardy Ferns in pots are placed amongst the Camellias, and their light elegant foliage has a fine effect; the varieties employed are nearly all British — Osmundas, Cystopteris, Athyriums, &c.

Table decoration is an important feature at South Hill, and the success that Mr. Thompson almost invariably achieves at our great local show—Newcastle—proves that he is a thorough master of the art. To meet the incessant demand for flowers required for this purpose an enormous amount of labour is necessary. That Mr. Wood is an enthusiast in all gardening matters may be learnt from the fact that he presents two cups to the Newcastle Flower Show Committee this year in conjunction with his annual subscription. At the taking-up of the bedding plants last autumn he caused it to be made known that anyone could have as many plants as they needed by attending at South Hill on a certain day; it is needless to say that many of the artisan and labouring classes gladly availed themselves of the offer.—PETER FERGUSON.

CULTURE OF NERTERA DEPRESSA.

THE following few notes may be useful in regard to this plant. I have grown it for the last few years as follows:—The plants were kept in a greenhouse until the berries died away, when some plants were started for the succeeding year. This would be in autumn about the end of August. Pans about a foot in diameter were well drained and filled up with soil, the soil being put in firmly and slightly raised above the level of the pots, small pieces of the Nertera being pricked in like seedling plants or cuttings. The pans were then set on a shady shelf in a stove, keeping the plants moist at the root, and syringing over the tops. After the plants had filled the pans they were removed to a cool vinery, only supplying sufficient water to keep the plants moist and in a fresh condition. The soil I used was similar to what young Cinerarias will thrive in—a mixture of loam, leaf mould, decayed manure, and sand. In spring to start the plants into growth they were put on a shelf near the glass of a Peach house, and watered overhead sometimes three or four times a day, according to the weather. On this shelf the pans remained until the berries began to colour, when they were removed to the greenhouse. With this treatment as fine specimens were produced as could be desired, and they were particularly noticed by visitors.—R. M.

SELAGINELLA DENTICULATA.—This plant is much more hardy than many are aware. I have had a quantity of it on a north-west border for the last three winters in patches of about a foot over. The last severe winter has killed the centre of the patches, which are very thick and about 2 inches higher than the outsides; the outsides of the patches are quite fresh and green. Last spring I planted a quantity amongst the rocks of a hardy fernery, which is merely sheltered by the overhanging Oak trees and a few shrubs on one side; there also it has withstood the last severe winter.—R. W., *Northlands, Salisbury.*

EXTRA WORK AND WAGES IN GARDENS.

AT page 346 "A HEAD GARDENER" has made some very sensible remarks; he appears in his career to have made only one resolve—viz., not to ask young gardeners to thin Grapes unless he pays them for so doing, but I have in my lifetime made two resolves—the first never to take a five-pound note out of the young men's pockets, and the second never to ask them to thin Grapes unless they are duly paid for their work. I have a vivid recollection of my apprenticeship days, receiving 5*s.* a week and paying weekly 2*s.* out of the same for learning the art of cleaning Wellington boots and feeding poultry and pigs, and my mistress used to enlarge on the great desirability of learning how to do everything well. After six years' hard work I was sent to a noble duke's place in the south of England, and here my troubles began. We used to work every night at something, the gardener declaring he always got the most out of the men after six o'clock, and perhaps twice in a year he would make a great point by handing us 2*s.* 6*d.* each, saying, "This will encourage you." However we did not think so, still we kept on working.

If a gentleman has more Grapes than he can afford to pay for in the way of thinning I say, Let them grow naturally. But it is not the employers' fault in nine cases out of ten but the gardeners', who on the plea of cheap labour endeavour to work the gardens for 2*s.* a year less than their predecessor. If a gardener cannot make Grape-growing pay unless he gets the thinning done free he has no business in such a situation. I always did. I always will, encourage and support my younger brethren; there is no class of men more respectable, no class harder worked, and no class that is paid so badly. I have now five in the rooms, and among the pleasant hours I spend are those engaged in an evening's chat with them; and each and all of them are at all times ready and willing to serve me in any way I desire.—R. GILBERT.

"A NORTHERN GARDENER," I am pleased to see by your last issue of the Journal, admits the general force of my remarks on page 346, but he qualifies his admissions by assertions on the responsibilities and obligations of young men, which I am afraid will only tend to strengthen the hands of those who insist upon the "work for nothing" custom, and I am mistaken much if the letters on this subject are not read eagerly by a number of your correspondents, who see the question from different points of view. The arguments advanced by "A NORTHERN GARDENER," are really those which have been urged by all who favour the practice, for the simple reason that they have no other plea to offer, and they may be at once met with the counter argument that the prospective and possible favours to be bestowed in reward for gratuitous labour given, or rather forced, are far too shadowy, and as a matter of fact seldom realised. And this is putting the question of simple right between a workman and his master wholly on one side. The custom cannot be defended on any plea whatever, and the fact of its prevalence is not creditable to either employers or their head gardeners, who simply take advantage of their position to extort assistance from their men that they have no right to.

In other spheres of business a fair day's work is considered an equivalent for a fair day's wage, and favour and promotion are regulated by the way men acquit themselves of their allotted duties; but with young gardeners it appears it is a case of "favours for favours bestowed." The truth is, however, that numbers of gardeners pay for all extra time, and there is no reason why it should not be so in all cases. It is not creditable to the fraternity of head gardeners, who have for years been grumbling at the remuneration they receive themselves, that they should have done more than any other class to injure the craft pecuniarily by voluntarily cheapening their own labour and abilities. The statement of "A NORTHERN GARDENER," that the "rigid six o'clock men" of his acquaintance went "to the bad," while the willing extra timers generally succeeded in gaining good positions, proves only, if it proves anything, that those who declined to conform to the unreasonable demands of their masters received the prizes

when there were any going, and the others were thrust aside as I stated in my last letter. The argument implied in your correspondent's remarks, that a man who asserts his own just prerogative in the disposal of his own time and labour will probably turn out comparatively worthless, is quite untenable. The question rests solely upon its own merits, and on this basis it is quite indefensible.

Personally I have had perhaps as many difficulties to contend with as anyone else in the matter of keeping up a large garden and large supplies with an inadequate staff, but I have managed to secure payment for all extra work including Sundays, and I find I can get the pick of young men whenever I have a vacancy, and have never to complain more of want of interest in their work, to say the least, than some of my neighbours who adopt the other plan. One thing I can say, my young men usually stay with me as long as I will keep them, or as may be desirable for their own future prospects. I do not envy the position of any gardener who has to champion a cause like "BUSY'S."—A HEAD GARDENER.

FROM "A HEAD GARDENER'S" remarks on page 364 it seems that my letter has been greatly misunderstood. The hours here are left altogether to the honour and conscience of those employed. Being a busy professional man I have neither the opportunity nor inclination to act the part of time-keeper; neither can I visit the garden nearly so frequently as I desire.

The gardener is left to himself altogether. Everything he asks for is freely given; indeed it would be satisfactory if he sometimes made a few more requests, as it would evince a little more interest in his business. All that is required of him in return, all that is wished or expected, would be vegetables fit for table, fruit that can be eaten with pleasure, and the plants and flowers in his charge tended and cared for, and not allowed to perish from want of skill or from apathy and indifference in neglecting to read up some of the numerous books provided for him.

There are no extra hours asked for here, and on Sundays nothing is done, save in winter the lighting, possibly, of a fire, or in summer the usual opening and closing of the houses; besides, each person about the place has two or more full holidays in the year. Books are kept and serials are taken for the use of those who wish to improve their minds, and everything is done to cultivate a love and an interest in each person's occupation. What would "A HEAD GARDENER" say to one of his men if he saw him leisurely walking into his garden about seven of a summer morning, or beginning to water at 4 o'clock P.M. under a broiling sun, in order to have all done at six to the moment, or getting a number of valuable cuttings, &c., and putting them anywhere till next day rather than give five minutes for their insertion after the longed-for six o'clock strikes?

No man should ever choose the occupation of a gardener unless he has a real love for his work. Other employments can be learned mechanically and can be thrown off the mind when the actual labour is at an end. A gardener's love for his plants and shrubs, his flowers, his fruit, his vegetables, is a part of his very existence—he must love them or he will never cultivate them with success. A gardener's calling is a high and noble and beautiful one; his is a life of constant hope, of present enjoyment, and happy aspirations for the future. A mere paid machine has none of the pleasure and can seldom appreciate the reward.—BUSY.

PORTRAITS OF NEW AND NOTABLE PLANTS.

COREOPSIS NUDATA. *Nat. ord.*, Compositæ.—"A singularly beautiful plant, with the foliage of a Rush and the flower of a small Dahlia or of a very large Anemone of the Japonica group; a native of swamps and ponds in the Pine-barrens near the coast of the Southern United States from Georgia to Florida. It has been referred to a small section of the genus to which the name of Cosmella has been given, but which appears to be a purely artificial group. The root is almost tuberous, and the leaves like those of a very slender Rush; they are stated to be fistular in a note attached to dried specimens communicated by the late Dr. Torry, but they are certainly solid in the specimens cultivated at Kew. The seeds of Coreopsis nudata were received from Professor Asa Gray, and were sown in a pan of moist soil in a warm pit; the plants thus raised flowered in the open air in September of last year."—(*Bot. Mag.*, *t. 6419.*)

VILLARSIA CAPITATA. *Nat. ord.*, Gentianeæ.—"A native of the Swan River district in marshy ground, where it attains a height of six inches or so. I have referred it to V. capitata with some doubt, because in the descriptions of that plant as well as in the figure (V. involucrata) cited above, the corolla lobes are acute and quite entire, and little if at all longer than the calyx, whereas in the plant here figured they are much longer than the calyx, broad, strongly two-lobed and denticulate. On referring to the dried specimens, from which both the description of V. capitata and the drawing of V. involucrata were made, I find the corolla has withered after the manner of Villarsias, namely by the excessively membranous lobes rolling inwards till the whole is shortened, and, as it were, retracted within the calyx, and no amount of maceration or careful dissection has sufficed to unfold them as to show their true shapes. In its usual state the heads of V. capitata are much more woolly than those of the specimen here figured, but this character is a very variable one."—(*Ibid.*, *t. 6420.*)

GENTIANA ANDREWSII. *Nat. ord.*, Gentianeæ.—"This, the 'Closed Gentian' of the Americans, is one of the handsomest species of the genus; it was long confounded with an American close ally, the G. Saponaria of Linnæus, from which it was first distinguished by Grisebach, who, however, does not observe that the G. Saponaria (erroneously quoted as G. Catesbæi in De Candolle's Prodromus l. c.), figured in this work (t. 1039) is, as far as can be ascertained from the imperfect description and very indifferent drawing, referable to G. Andrewsii. The chief diagnostic characters between these two species are the linear or spathulate calyx lobes of G. Saponaria, which equal or exceed the tube, its light blue corolla with distinct lobes and cleft appendages, and its acute narrowly winged seeds. G. Andrewsii is common in the damp woods of the North-eastern United States and Canada; it was brought into Kew in 1776 by a Mr. William Young, and appears to have been introduced into England even at an earlier period by Messrs. Loddiges. It flowers in August and September at Kew, where, however, it does not attain the status and development which it does at Mr. G. Wilson's of Heatherbank, Weybridge."—(*Ibid.*, *t. 6421.*)

VILLANOVA CHRYSANTHEMOIDES. *Nat. ord.*, Compositæ.—"A hardy free-flowering annual, a native of the Rocky Mountains of Colorado and New Mexico, at elevations of 4 to 6000 feet and upwards; very like a Groundsel in habit and appearance, but belonging to a totally different tribe of the vast natural order of Compositæ. The genus is a purely American one, and the only known species are the present and two others, one a native of New Grenada and the other of Peru."—(*Ibid.*, *t. 6422.*)

BILLBERGIA NUTANS.—"This may be recognised at a glance by its narrow acute leaves and green petals with a sudden blue edge. The precise country to which it belongs is not known, and there are no dried wild specimens in our London herbaria, but the head quarters of its allies are Central and Southern Brazil. We have had the plant at Kew for some time. Flowered at Kew in January, and it has also been flowered this winter by Mr. Chas. Green in the fine collection of Sir George Macleay. It was first introduced into cultivation about 1868."—(*Ibid.*, *t. 6423.*)

LINARIA DALMATICA.—"A handsome but very variable hardy Toadflax, of which a rigid erect form with crowded flowers in a dense raceme is figured in the "Botanical Register," from seeds sent from Persia. It was, however, introduced into England before 1731, when it was cultivated by Philip Miller in his garden at Chelsea. It has a wide geographical range. Commencing in the east side of the Adriatic, it ranges through the islands of the Levant to Constantinople, Odessa, the Caucasus, Mesopotamia, Persia, and the Caspian Sea."—(*Ibid.*, *t. 6424.*)

NARCISSUSES.—No. 2.

MR. BARR'S nursery at Tooting is literally a blaze of gold and silver, for no flowers are sent to market; consequently while Daffodils last the grounds are always attractive, as indeed they are at all times except in the depth of winter before the Hellebores are in bloom.

Having referred to the larger sections of Narcissi, Magni-coronatæ and Medio-coronatæ, I now proceed to notice the third section, Parvi-coronatæ, which includes the N. Tazetta and N. poeticus varieties. I will first refer to the poeticus group of this section.

The distinctive marks of Narcissus poeticus are two. The cup is flat and short, and the perianth always white. Poeticus grandiflorus is one of the best of the early-flowering varieties.

This is very large, white, with a crimson crown. Poeticus tripedalis has the divisions of the perianth thrown back like a tripod. Poeticus ornatus has a large cup, and the flower is of good colour and finely formed : this is a perfect florists' flower. Poeticus angustifolius (see fig. 54), another beautiful variety, has the smallest crown of all ; while poeticus poetarum is distinguished by the crimson corona. Poeticus stellaris has small white flowers, neatly formed and very fragrant. There are several other varieties of poeticus, but those noted are undoubtedly the best, although all are meritorious in some degree.

Fig. 54.—NARCISSUS POETICUS ANGUSTIFOLIUS.

In the same section may be noticed the beautiful dwarf species N. intermedia, with small but neat flowers and primrose-coloured coronas : this and its variety bifrons, which has the corona orange-coloured, are very elegant. The silver Jonquil (N. tenuior) is an extremely graceful plant with flowers of a silvery whiteness.

Leaving these we come to the Tazetta group, for such it certainly deserves to be termed, including the bunch-flowering Narcissuses. Here we have the old but attractive species N. papyraceus (see fig. 55), which has exquisitely formed and highly perfumed paper-white flowers borne in a moderate-sized truss. Amongst the true Tazetta varieties the best is certainly Bazelman major, with fine flowers and orange yellow coronas, really an excellent and valuable form. General Wyndham is somewhat similar, but of a lighter yellow colour. Florence Nightingale, a good variety, has a white perianth and deep

orange corona. The varieties in this group are numerous, but the above forms represent the general types, the others differing chiefly in the various shades of yellow of the corona.

I may now perhaps appropriately supplement the above notes by referring to some of the more promising of the newer hybrids and varieties in the different sections—the new Narcissi which were raised by the late Mr. Leeds of Longford Bridge near Manchester, and the late Mr. Backhouse of Wearsdale, Yorkshire. These Daffodils no doubt are the results of Dean Herbert's treatise on the hybridisation of Narcissi published in the Transactions of the Royal Horticultural Society. Unfortunately both these steady and industrious labourers in the Daffodil vineyard have left no record, so far as is known, of how they produced their results. It is therefore an interesting occupation, to those who like the study, to be engaged in tracing the primogeniture of a specific class of flowers. Without describing the individual forms, all of which are distinct from the ancient varieties which were known at the time Dean Herbert and Mr. Haworth were studying this family, and which are doubtless the result of intercrossing with Bicolor. Cernuus, Moschatus, Rugilobus Major, and Maximus, I may briefly give the following definitions.

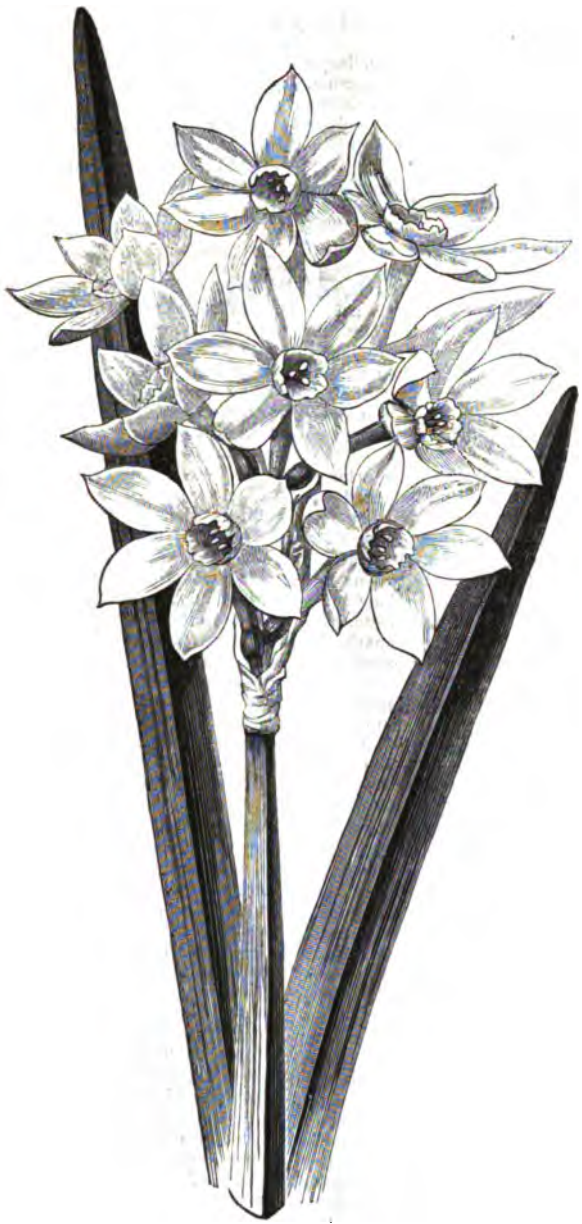


Fig. 55.—Narcissus papyraceus.

Bicolor Maximus has large white divisions of the perianth overlapping, with a yellow corona; the flower has the fine substance of Empress but is larger, while the plant itself is not so tall.

Bicolor J. B. M. Camm.—The divisions of the perianth are white, and the corona sulphur colour.

Cernuus pulcher is very distinct. The corona is a fine canary colour, changing gradually to the colour of the perianth, which is white.

Exquisite is a remarkable variety of Pseudo-Narcissus, with the corona sulphur, and the divisions of the perianth of a whitish sulphur somewhat embracing the trumpet.

Volutus has the corona exquisitely formed and beautifully convoluted, and of a soft clear yellow overrun or interlaced, suffused with beautiful fretwork, as if it had been dressed by the dainty fingers of the coiffeuer of La Noblesse.

Magnificus is so described from its exquisite outline, large flower, and beautiful soft yellow-coloured perianth and corona.

Hudibras, so named from its grotesque flower. The divisions of the perianth are large, broad, and overlapping, in colour striped greenish white; the corona is short, having a weather-beaten appearance.

Milneri is a little gem, smaller than the Pseudo-Narcissus, but beautifully formed and of a uniform clear sulphur colour.

Shirley Hibberd is a very remarkable flower in form. The colour is of a uniform bright yellow; the corona very open and gradually bevelling, giving it an unique appearance.

Next come the forms of Humei. These are true hybrids, and more remarkable than beautiful. They appear to be a bad compromise between Ajax and Incomparabilis. They are neither the one nor the other, and yet both flowers are badly represented in them. The one named paradoxus from its uncouthness ought to have been an antediluvian flower, while the variety albus is graceful in habit and form and of a clear colour. The type and the form albidus stand between the two extremes I have described.

The Nelsoni hybrids were designated by Mr. Leeds Shortened Bicolors, a very expressive name, but one not adapted for tabulation. These appear to be hybrids between Bicolor and Macleayi so far as form is concerned, Minor being more than twice the size of Macleayi, and the type Nelsoni and the Major variety have flowers twice the size of Minor. Aurantius has the cup richly suffused with orange scarlet: this colour must have come from Orange Phœnix, which has the nectary of this colour. All the flowers in this section are remarkably decorative, being of great substance and with a good bold appearance.

The Incomparabilis varieties must have played a conspicuous part in the production of those above named, inasmuch as forms more or less modified abound most largely in both collections, giving a range in size of flower and height quite remarkable, ranging from about a foot to 2 feet, and with flowers 3 to 5 inches in diameter. The cups in these flowers are as variable as it is possible for them to be. Some are straight and round as a gun barrel, others are as wrinkled, crinkled, and plaited; some are strongly marked halfway down with orange scarlet with modifications till the scarlet runs round the margin of the cup. The shades of colour range from bright yellow, clear sulphur, creamy white to snow white, these last forming a beautiful contrast to their bright yellow cups.

The Leedsii hybrids are from Incomparabilis albus and montanus, some following the Incomparabilis, while others have the peculiarly formed perianth of montanus, while others again have the drooping form of montanus with broad divisions of the perianth. The cups range from clear canary to lemon and silvery white. Some have the cups long, others short and open, and others intermediate.

The Barri hybrids are from Incomparabilis and odorus, generally dwarf and the flowers proportionately small; but the cup being the distinctive characteristic, we find that some few have large beautifully formed flowers, though the generality are like the group of hybrid Narcissus figured in Burbidge's book on Narcissus, plate 22. Like the Incomparabilis section the cups are sometimes vasiformed, and in one remarkable instance the cup seems to have so expanded as to have turned the divisions of the perianth into a saucer. The flowers in this section range from bright yellow to pure white, and will be greatly valued for bouquets.

The Burbidgei forms are hybrids of poeticus slightly touched with Incomparabilis. The typical form to a casual observer would readily be mistaken for poeticus, but it possesses the rare advantage of flowering a fortnight earlier than the earliest variety of poeticus, and a comparison would soon discover the difference in the deeper cup and the bright red pervading it, while the divisions of the perianth are pure white. Here again we have a great variation in the cups which are characteristics of the variety. Some are small, others broad and flat; some are pure self-coloured, but the generality are more or less strongly tinged with red, while the divisions of the perianth range in colour through snow white, cream, and primrose.

Those are the principal new varieties of Narcissi at Tooting, but there are a great number also of unnamed seedlings which came from Mr. Backhouse, but these will require the labour of years before they will be classified and named.

Daffodils are most glorious flowers, and if they were stove plants or tender exotics they would be highly prized; but they happen to be beautiful hardy bulbs which can be purchased very cheaply, and which make our gardens gleam and glow during the cold spring months as if the ground was strewn with gold.

Narcissuses, as I have endeavoured to show, embrace all shades of colour, ranging from the deepest gold to snow white, and range in size from as small as the Snowdrop to the large bold flowers of maximus, while their diversity as to form is as great and varied as any other class of flowers with which I am acquainted.—WYLD SAVAGE.

HAWFINCHES.

NOTING in "WILTSHIRE RECTOR'S" very interesting remarks on page 341 that he believes the hawfinch does not breed in the country—a remark I must confess, considering the worthy Rector's experience as an ornithologist, much surprised me—I beg to inform him that at least for the last forty years I have occasionally found their nests, chiefly in orchards, also in Lime trees. The nest composed generally of small twigs and hairs, of such as horses, cows, &c., in fact very similar to bullfinches' nests, whilst at this place during a period of twenty years I do not recollect failing to observe every year at least one or two pairs of young birds accompanied by their progenitors' visits to the green Peas, but being very shy at the approach of man they have seldom fallen victims to powder and shot. When a boy I was intensely interested in the capture of the hawfinch, and have spent many an hour patiently concealed in the shrubs beneath a group of tall Limes, the summits of which were, both in summer and winter, the favourite posts of observation for these interesting birds. I do not recollect finding that they fed upon any stone fruit excepting Cherries, neither am I cognisant that they attack the buds of fruit trees or nuts, though I have on a few occasions caught them in steel spring mouse traps baited with half of a walnut kernel.—WM. GARDINER, *Ettington Park.*

HERE I have never seen a specimen, but while resident in Hertfordshire I found the hawfinch too fond of green Peas. At first, although I knew a pair were nesting in the grounds, I blamed rats for the small heaps of pea pods collected in various places; however, the hawfinches became more bold after the young ones were fledged, and were watched day after day, until finding that the supply could not be kept up for the house as they cut off so many more than they ate, I was reluctantly compelled to shoot them; and in two days killed five young birds and two old hens. The young birds had the distinctive plumage of the sexes when fledged, exactly as in the old birds. On other occasions I have seen the hawfinch in Hertfordshire but not the young. How variously birds are viewed in different interests! There, with Cherry orchards abounding, the starling was a foe, while here it is only regarded as a friend.—R. C., *Castle Gardens, St. Fagans.*

ABOUT nine years ago I was living at Broxmore Park, part of the estate being in Wilts, the other in Hants. During the winter of 1870 I shot seventeen hawfinches. The kitchen garden there is surrounded by trees and shrubs; on one side there are a number of Hornbeam and Beech trees, the seed of which the hawfinch is very fond of, and no doubt the cause of so many frequenting the place. The following summer I watched a bird from my cottage window descending from the same belt of trees to a row of Peas at intervals of about two minutes. when creeping through the shrubs I watched it feeding two young birds nearly fledged. These three birds I shot. I am now living about three miles from the same place. Last winter I shot three, this winter I shot four, and could have shot more, but it would have been against the wish of my employer.—R. W., *Salisbury.*

ELASTIC WATERPROOF CEMENT FOR TREES.—Take one quart of fine North Carolina tar and boil it slowly three or

four hours. Add to the boiling tar 4 ozs. of tallow and 1 lb. of beeswax, and stir till well mixed, then remove the vessel from the fire and stir till the contents begin to thicken. Have ready 1 lb. of dry and sifted clay, and stir it thoroughly until you can stir no longer. In warm weather this cement is soft enough to be easily spread with the point of a knife. When applied to wounds on trees it completely excludes moisture, does not harden or crack or scale off, yields to the new growth, and can at any time in moderately warm weather be pressed by the finger into the corners and crevices of the wound which may be uncovered.—T. H. HOSKINS (in *Rural New Yorker*).

MABEL MORRISON ROSE.

IT may interest some of your readers, lovers of Roses—and who are not?—to hear something about that great acquisition Mabel Morrison. It is, I believe, quite new. I purchased a small plant in a pot last autumn, and flowered it under glass this spring. It originated as a sport from Baronne de Rothschild, but is a most pure dead white. It retains the exquisite shape and wonderful texture of its parent, in fact is in every respect a perfectly white Baronne de Rothschild. My plant, though small, has given me three blooms already. Of course they were not so large as I may expect when the plant is stronger. I showed one of them in the winning box of twenty-four blooms at the Show of the Royal Horticultural Society of Ireland on the 15th inst., and it stood out a gem among its companions. I feel that I do a service to those who may not know the Rose, in advising them to obtain Mabel Morrison without delay.—FREDERICK TYMONS, *Clk., Co. Dublin.*

PARAFFIN: ITS USE AND ABUSE.

I FEAR your correspondent, "H.," page 344, made rather too free use of paraffin; it requires to be used with great caution, although I believe you may use it with safety on most plants if done with care and at the proper time. Paraffin will burn the bulbs of Orchids like caustic if used too strong. Having used paraffin with success on Camellias, Orange trees, &c., the trees never were more healthy, nor made better growth after the process. Perhaps your correspondent used a sponge or syringe. I have used only a camel's-hair pencil. It was not the strength of the paraffin that killed your correspondent's Stephanotis, but the quantity he used. Let anyone take a camel's-hair brush and just dip it in the paraffin and touch the parts of any well-ripened wood, you will see the scale drop off the plant at once. Plants that are affected with scale or mealy bug should always have well-ripened their wood and be in the shade and in a cool house before they are painted with paraffin; but the best time to apply it is early spring just before they make any new growth, and where you can place them in a little heat and in two or three days give a good syringing.—T. ELCOME.

I AM not surprised at "H." having to record his loss in last week's Journal by the use of paraffin oil. Let him try it in the following manner, and I venture to say he will find it an excellent cleanser:—Take a gill of boiling water, mix it with black soap till about the thickness of cream, pour this mixture in five gallons of water (I like hot water best), stir it well, and apply with syringe or sponge as may be convenient—it is best used in dull weather—and syringe it off before it has time to dry on the plants. We have used it on Camellias, Stephanotis, Hoyas, Dracænas, and such-like plants with the best results in ridding them of bug, scale, &c. We also syringe our Vines and Peaches with this mixture immediately after the crop is gathered, and find it of the greatest value in keeping down insect pests. It is also of use in watering ground infested with grubs.—G. L. M.

LAST spring my gardener soaked some Peas in petroleum as an antidote to mice. The Peas came up very weak and did not yield one-third of a crop. Last December I had all the Vines in one house painted all over with petroleum in order to get rid of the mealy bug which had greatly infested the Vines. The Vines pushed their eyes, but broke very weak and with small, thin, transparent leaves. Most of the shoots ultimately withered up, and the whole crop of Grapes is practically ruined (though some of the Vines first painted have partially outgrown the evil), and most of them will require renewal by training-up fresh shoots from the very bottom of the Vines. I also painted an Azalea in the same way, and it, too, shot out for a time, but afterwards died altogether.—WALTER BRISCOE.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Sow Cauliflower seed for the supply of heads in autumn, that constituting what is known as the Michaelmas crop. Walcheren is the most suitable variety for this sowing, and when transplanted on sheltered borders it will often yield a supply up to Christmas. Onions, Carrots, and Parsnips that are ready for thinning are liable to be attacked by grubs. A dusting of soot whilst the plants are wet with dew or after rain, or a sprinkling of guano, is generally sufficient to prevent the deposit of eggs, providing the application is made sufficiently early—that is, when the plants have a pair of leaves besides the seed leaves, and the dusting may be repeated in a fortnight. The manurial character of these applications is beneficial to the plants. In shallow soils, indeed any soil, if the weather be dry after thinning the plants, it is a capital plan to mulch between the rows with short partially decomposed manure, or lawn mowings answer very well, keeping the soil in a uniform moist state, without which the plants are liable to suffer from drought and the attacks of insects, &c. Mustard and Cress should be sown once a week, or oftener to ensure a constant supply. Well ventilate frames containing Beans, supplying the plants with water or liquid manure abundantly.

FRUIT HOUSES.

Vines.—The last few days of bright sun have greatly improved the condition of Vine foliage. Employ as little fire heat as possible, for with sun heat and plenty of atmospheric moisture more real benefit is gained in a week than in a month of dull weather with the aid of fires. The Vines being in full growth the temperature may be allowed to rise to 90° or 95°, closing the house at 85°, employing fire heat only to maintain a temperature of 70° to 75° by day, and to prevent it from falling below 65° at night. These remarks apply only to Vines in full growth, as those that are approaching ripening should have a rather free circulation of warm dry air; those well advanced in ripening should be kept cooler and drier. Air should be admitted very early in the morning, as the sun's rays act powerfully on the condensed moisture formed on the foliage during the night, causing scorching unless air has previously been given. It is usual to water Vine borders at stated intervals—viz., to render the borders thoroughly moist when starting the Vines, when the Grapes attain to thinning size, and when they are commencing to ripen; but inside borders must be watered more frequently. There are more failures from insufficient than overwatering; the borders being properly constructed and the drainage complete, watering twice a week until the berries are changing colour is not too much for inside borders, particularly where the root room is limited. Late Vines will now be in flower in most places, and a minimum temperature of 70° should be maintained, the rods being shaken several times a day to assist the dispersion of pollen, and in the case of shy setters artificial impregnation must be attended to. Whilst the Vines are in blossom do not pinch or stop the lateral growths, but when the blooms are fairly set remove the laterals at once so as to prevent overcrowding. In houses where the fruit is ripe afford fire heat only to prevent the temperature falling below 60°, and to admit of a rather free circulation of air. Do not allow the border to become very dry, but keep it moist, and mulch with rather dry litter, from which the dung is removed; it will retain moisture a long time, and lessen the evaporation from the surface of the border, though a little moisture in the atmosphere is not injurious to the Grapes. Fumigation must be resorted to if thrips appear. Vines struck from eyes in February or March and grown on in pots or turves may from now to the early part of June be planted out, giving them a good soaking with water at a temperature of 90° to 100°, mulching the surface with a couple of inches of short manure or rough turfy loam. A humid atmosphere should be maintained, and shade afforded from bright sun until they become established.

Figs.—The fruit of early-forced Figs are insipid unless ripened under the most favourable conditions as regards a free circulation of dry air and warmth; to effect which, if the nights are cold the temperature must be maintained at 60° to 70°, and in the day at 80° to 90° from sun heat. When the fruit is all gathered from the trees in pots remove the loose portion of previous mulchings and replace it with well-decomposed manure, which will encourage root-action and assist the trees to perfect the second crop. The daily syringing must again be attended to, as red spider may have obtained a hold during the dry period of the ripening of the first crop. Still attend to stopping, thinning, and regulating the shoots of the trees that are permanently planted out, syringing twice daily until the fruit commences ripening. Mulching the borders with well-decomposed manure is very advantageous in maintaining the borders in an equally moist state, and encouraging surface roots. When the surface material is well filled with roots add another covering 2 to 3 inches thick. The border in which the trees are growing must not be allowed to become excessively dry, as t will not only prove injurious to the crop but encourage red

spider; therefore water as often as required to keep the soil in a thoroughly moist state. When trees planted in houses are ripening their fruit they must be treated as directed for trees in pots.

Cucumbers.—Water freely at the roots, and be careful that it is applied at about the same temperature as that of the bed in which the plants are growing. Plants that have been in bearing all the winter will now be exhausted, producing short stunted fruit, in which case it is best to thoroughly clean the house, removing the old soil and plants. The house will be available for Melons, there being plenty of time to ripen a crop before the house will be required for winter Cucumbers, the summer supply of Cucumbers being readily secured from frames. Assist young plants which show any signs of weakness by removing all the male blossoms and the first fruit, stopping the shoots frequently at the third or fourth joint, removing weakly and superfluous growths. Syringing must be practised moderately between 3 and 4 P.M., shading no more than is necessary to prevent flagging. A good moisture must be maintained all day in bright weather, as with excessive evaporation the foliage will suffer. Plants in frames over beds of fermenting materials should be lightly sprinkled overhead at closing time and have supplies of water as required, but avoid especially if the weather be cold and dull. Stop the shoots one or making the soil very wet, as it tends to produce gum or gangrene, two joints above the fruit, removing bad leaves as they appear, and cut out exhausted or crowded growths, renewing the surface of the beds with some lumpy loam. Weakly plants may be assisted with liquid manure, and do not allow the fruit to remain on the plants long after they are fit to cut, as the plants soon become enfeebled by overcropping. In forming beds the spent material from the Seakale pots, &c., with the addition of a fourth of fresh material, will afford all the bottom heat that is now required. Night coverings will yet be needed, the linings being attended to as necessary to maintain a suitable temperature—viz., 70° to 75° by day, and 65° at night. Much may be done towards securing the needful night temperature by husbanding the sun heat, closing as early in the afternoon as is consistent with the safety of the plants.

Peaches and Nectarines.—When Peaches are ripening a circulation of air must be secured or the flavour will be very inferior, for though the fruit swells to a large size with a high temperature and moist close atmosphere, and is very good in appearance, the less said of its flavour the better. Let the inside borders where the fruit is commencing to ripen have a good watering, and mulch with some short but light material to maintain the moisture until the crop is off. Outside borders must not as yet have the protective material removed. The shoots should be well tied in, and any leaves overhanging or shading the fruit should be removed, raising the fruit to receive the light equally, not allowing more shoots to remain than is needed for next year's bearing. Continue syringing until the fruit begins to ripen. In the succession houses attend to tying down the shoots and thinning the fruit according to the crop and the vigour of the trees. One fruit to a square foot of covered trellis is sufficient, but for weakly trees the fruit should be thinned out more, whilst vigorous trees should be allowed to carry more fruit. It is a great mistake to overcrop trees, as the fruit should it pass stoning satisfactorily will not ripen well, and the trees are often permanently injured. Afford liquid manure to trees carrying a full crop, and especially those in a weakly state, supplying it when the fruit is first swelling. The water employed for syringing the trees should be, if possible, soft or rain water, as hard or spring water often leaves a deposit (generally carbonate of lime) on the foliage and fruit, rendering them unsightly. Let there be no deficiency of moisture in the inside border, but water thoroughly once or twice a week; small borders requiring water more frequently than those of greater area.

FLOWER GARDEN.

Roses, like many other plants, are late but strong. The Rose maggot if not destroyed in time makes sad havoc with the buds; therefore any leaf that appears from its curled appearance to harbour the pest should be tightly squeezed between the thumb and finger. Aphides are best destroyed by dipping the shoots in tobacco water or sprinkling the bushes with it by means of a fine-rose watering pot. Hardy annuals are coming up freely, and should be thinned early, allowing the seedlings to stand 3 or more inches apart to admit of their development. Sweet Peas, tall Nasturtiums, and similar plants will require supports; and wage incessant war against weeds, as attention to hoeing whilst they are small saves much after-trouble.

The weather is still unfavourable for bedding-out, and the plants are less forward than usual, but a beginning may shortly be made with the hardiest plants, as Verbenas, Pyrethrums, Lobelias, and the Pelargoniums that have been well hardened off. It is better to retain the plants in sheltered situations a few days too long than not long enough, the plants in the latter case becoming stunted and remain stationary for a considerable time. The ground being cold it will be advantageous to fork over the beds or borders on fine days. No attempt should be made to place out the tender kinds of Pelargoniums for another fortnight, nor such plants as Alternantheras, Coleuses, and Iresines, and most subtropical plants. Asters, Stocks, and Phlox Drummondi, with other half-hardy annuals from the earliest sowing, will be now fit to transplant, and should be planted out, choosing a dull day for the operation, and after watering dust soot or lime around the plants as a protection against slugs. Box edgings may now be cut and trimmed into shape, choosing if possible moist dull weather, as if cut when the weather is bright they will have the appearance of having been scorched. The Clematises and other climbers must have the shoots trained in, as they soon become an entangled mass if neglected. Weeding, sweeping, and mowing will require regular attention, for the neatness of a garden is of great importance, especially as the different varieties of early-flowering shrubs are beginning to unfold their beauties.

PLANT HOUSES.

Greenhouse.—Pelargoniums of show and fancy varieties will now require the assistance of liquid manure, which is not only necessary for such as are required for exhibition purposes, but especially for those required for the decoration of the conservatory, as they are useful in proportion to the time they remain in flower; and to prolong the flowering liquid manure should be supplied from the time the first trusses appear. A little air should be admitted early in the morning, or the lights may be left open a short space all night, as when the sun shines powerfully upon the foliage whilst damp from the condensation of moisture they are liable to spot. If there is the least trace of aphis, fumigate; and after the flowers expand shade them from bright sun. Zonal Pelargoniums intended for succeeding the show varieties should be encouraged in growth, shifting them into larger pots if they require it, watering with liquid manure, stopping and tying out the growth to insure compact plants, and removing the trusses of bloom as they appear. Tuberoses can be brought into flower as required by placing them in a gentle hotbed with the pots plunged, admitting air day and night so as to keep the tops cool until the pots are well filled with roots, after which the plants may be removed to a house or pit where they will receive more warmth, keeping them near the glass to prevent them becoming drawn, and affording a plentiful supply of water. Plants of Richardia (Calla) æthiopica that have flowered during the winter, &c., may now be divided and planted out in slightly sunk beds prepared as for Celery, selecting an open yet sheltered situation, and keeping them well supplied with water during the summer. Treated in this way they make much better plants, and are less trouble than when grown in pots, lifting and potting at the close of September or early October. Fuchsias after the pots are filled with roots should be liberally supplied with liquid manure, keeping the plants well stopped to secure symmetrical well-furnished plants. Shift plants from cuttings this spring into larger pots as they require it, also Petunias, pinching as needed to secure compact plants. Cassia corymbosa should be encouraged to make stout growths by being placed in a good light position, where it will make short-jointed wood and flower freely when there is a scarcity of indoor flowers. It is impatient alike of overpotting and overwatering, sandy loam with a little leaf soil suit it well, Syringe freely, as the plant is subject to the attacks of red spider. Balsams should be placed in a light situation, affording liquid manure to the earliest-sown plants, as they will be growing strongly, syringing them on bright afternoons. A sowing made now will produce plants that will make a fine display in late summer. Cockscombs should be kept near the glass to insure a dwarf habit, syringing to keep down red spider, and not allowing the plants to want for water at the roots. Celosias are fine plants for the conservatory, and should be grown also in light positions, shifting them into larger pots as required, and pinching off the first flowers both upon the top and side growths, which may be repeated until the plants are well furnished, the inflorescence then coming more feathery and elegant. Globe Amaranthus is an old-fashioned plant, but its Clover-like heads are very ornamental, and flowers at a time when acceptable. It does not require to be kept so moist or so warm as Cockscombs. Cyclamens must not be dried off after flowering, but should be stood upon ashes in a pit or frame, and have water as required to maintain the foliage fresh as long as possible. Deutzias that have done flowering should be well pruned, cutting away the old shoots, and encouraging young growths by a little warmth, and after the growth is completed they should be hardened off and placed out of doors in a sunny position, not neglecting them for water. Cuttings of the young growths strike readily in gentle heat if they are taken off with a heel, and being potted when rooted and encouraged to make growth make nice plants for next season's flowering. Lily of the Valley retained under glass and well supplied with liquid manure will form fine crowns available for next season's early flowering. Plants of Spiræa japonica that have flowered may be divided after hardening them off, and planted in rich moist soil, and after a season's growth they will be strong and available for forcing. Plants of Schizostylis coccinea that have flowered in pots should be divided and planted out in rich soil in an open situation. Christmas Roses being impatient of disturbance at the roots should be retained in the pots, but plunged in ashes and duly supplied with water. Laurustinuses that have been forced should be pruned in so as to restore any want of sym-

metry consequent upon cutting, and when hardened off place them in a sunny situation and water them frequently. Liliums should be afforded plenty of light, and be top-dressed with some thoroughly decomposed manure, and be well watered; those wintered beneath ashes, &c., should be withdrawn and placed in cold pits, &c. Hardwooded plants are not much employed for conservatory decoration, probably from the idea that they will suffer injury, but if allowed a moderately light situation, and removed to their growing quarters so soon as the flowering is over, they do not suffer in the least. Chorozemas, Boronias, Eriostemons, &c., are attractive and useful in conservatories. Acrophyllum venosum and Pimeleas generally should be shaded from powerful sun.

TRADE CATALOGUES RECEIVED.

Carter & Co., High Holborn.—*Catalogue of New and Choice Plants.*

B. S. Williams, Victoria and Paradise Nurseries, Holloway, London, N.—*Catalogue of New Plants.*

Dick Radclyffe & Co., High Holborn.—*General Catalogue of Horticultural Requisites.*

Cranston & Co., King's Acre, Hereford.—*Catalogue of New Roses and Bedding Plants.*

James Dickson & Sons, Newton Nurseries, Chester.—*List of Bedding Plants.*

TO CORRESPONDENTS.

SITE FOR A GREENHOUSE (*P.*).—A west aspect would be suitable for a house for wintering bedding plants, but we should prefer for Grapes to have the house a half span or a short roof resting on the wall with a longer one to the west. The wall will save you some expense, and by having a half span you will secure more solar light than by having the whole roof facing west.

REDUCING THE HEADS OF RHODODENDRONS (*M.*).—This is best performed now so as to admit of an early and well matured growth. We pruned some shortly after flowering last year, and the consequence is the late growth has been considerably browned by the severe winter.

STOPPING MELONS (*A Lady*).—Stop the shoots one or two joints beyond the fruit. The fruits that are swelling without being artificially impregnated are no doubt fertilised, probably by insects. Overwatering after the fruit is full-sized is likely to cause it to crack, especially if the weather prevent free ventilation. Reduce the supply of water when the fruit is ripening, and admit air rather freely.

STOPPING TOMATOES (*Idem*).—The Tomatoes should have been allowed to grow; but as you have stopped them the side shoots must be left, some of the strongest being stopped one joint beyond the truss, unless there be fruit at that or the joint above, when the stopping is not necessary so long as fruit shows freely, until four or five trusses are formed. Avoid overcrowding by timely thinning, and stopping, if necessary, to induce fruitful growth.

CAULIFLOWER AND BROCCOLI (*Idem*).—The Walcheren and Stadtholder Cauliflower sown the second week in May will have heads ready to cut from the middle to the end of September, and during October. The Broccoli will come in in the following order: Veitch's Autumn and Snow's Early in December, the plants being lifted when the size of a teacup and placed in moist soil in pits or frames, and with protection in severe weather will afford a supply for the greater part of the winter; Cooling's Matchless usually forms heads in late February or early March up to April; Hammond's Imperial the early part of April, and Lauder's Goshen late in the month or in May, or even in June.

JUDGING MIGNONETTE (*J. O.*).—It is impossible for anyone without seeing the plants to form an opinion of any value as to the relative merits of the competing collections. Possibly the judges were influenced in awarding the prize to the smaller plants because of the inequality of growth of the larger plants referred to, one being grown in a natural manner and the other trained on a balloon trellis. The Mignonette is not a climber, and it is usually a mistake to exhibit plants on balloon trellises. If both your plants had been grown in a natural manner they would probably have found greater favour with the judges. Superior cultivation should have more weight in the adjudication of prizes than any novelty in varieties exhibited.

CARPET BED ARRANGEMENT (*A. B. C.*).—Your proposed mode of planting is generally good, but we think Alternanthera paronychioides major preferable to A. magnifica in No. 1, as the former often colours better than the latter and does not grow quite so strong. A. versicolor though it has large leaves is not at all a strong and free grower, and you will have no difficulty in keeping it down. We should prefer Mesembryanthemum cordifolium variegatum for No. 3, but Golden Feather will do provided the plants are very small when planted. If Sedum glaucum thrives well in your district we should adopt it as the groundwork. It must be planted sufficiently close and at once, so as to form a dense carpet; with Mentha in the scroll as well as the groundwork your bed would be too green. The outer line of Golden Feather will do very well if you can keep it sufficiently dwarf. You would have had less trouble in that respect with the Mesembryanthemum, and its appearance would be more chaste. The plants of Golden Feather when planted in the bed must only be of the size they usually are when pricked-out from seed pans; in fact, it is a simple question of pricking the plants an inch or two apart in the panels, instead of pricking them out in boxes or nursery beds.

BLACK CURRANTS DISEASED (*H. K.*).—The peculiarity of the buds has been caused by an arrest of the growing axis, the buds having, to use a popular term, "gone blind." We have subjected the sprays to close examination and can find neither insects nor fungus to account for their present appearance. The swelling of the growing parts is due to the sap being forced into the buds, and their bursting is the result of an effort made by the trees to develope growth. Whether the original check that the buds have received is due to the puncture of an insect we have no means of determining. The only remedy that you can apply towards restoring the trees to fruitfulness is to cut them down. They will, if the roots are healthy, break freely from the old wood and produce clean shoots for future bearing. We should cut them down at once in order to secure as much growth as possible this year. If all the buds are like those sent the bushes will be ruined unless you apply a bold remedy and act promptly.

ROSE SHOWING AND BOXES (*A Young Beginner*).—The blooms should be exhibited in boxes, the stems of the blooms being placed in tubes filled with water, the tubes being embedded in moss, the smoothest and freshest of which should form an emerald surface to display the blooms to the greatest advantage. Each bloom should be cut with as much foliage attached to the stem as possible, but no leaves must be added. If the blooms are cut on the morning of the show they should be secured early and before the dew has evaporated from their petals. The moss in the box must be moist, and the blooms should be arranged so as to stand a few inches above it. Many new beginners spoil their boxes by pressing the blooms close down on the moss. The boxes should have lids which, especially on sunny mornings, must be kept over the blooms until the last possible moment before the judges enter the show. We have known many prizes lost and Roses spoiled by the blooms being exposed too early and too long. The boxes should be 18 inches wide, 6 inches high at the back, and 4 inches in the front. The length of the boxes should be, for twenty-four Roses, 4 feet; eighteen Roses, 3 feet; twelve Roses, 2 feet 2 inches; and six Roses, 1 foot 6 inches; the covers being 7½ inches in depth at the back, and 5 inches in front, 4 feet 1 inch in length, 1 foot 7 inches in breadth, and having a narrow beading within the four sides, half an inch from the bottom of the lid, overlap the boxes, leaving ample room for the Roses, and are secured for travelling by stout leather straps. These sizes are given by the Rev. Canon Hole, the President of the National Rose Society in his "Book about Roses."

SPRING BEDDING PLANTS (*A. D., Isle of Man*).—A great number of plants suitable for spring bedding are readily raised from seed or cuttings; others, such as bulbs, must be purchased in the autumn and then planted in the beds. Wallflowers are indispensable, especially when the beds are at all large. Procure seed of a dwarf single crimson and yellow variety, and sow it at once in the open air. The plants should be grown throughout the summer in an open situation, they being planted a foot apart in rows, the same distance asunder. Stop the plants when they are about 6 inches high to induce them to grow dwarf and bushy. They should not be pinched after July. Double white and red Daisies, also the Aucuba-leaved Daisy, are very valuable. Divide the plants in May or early June, and transplant in a partially shaded border. Arabis albida and its variety variegata produce a mass of white very early in the season. Slips inserted now root readily and make fine plants for next year. The same remark as to propagation applies to the Golden Alyssum, A. saxatile, and its variety compacta. For producing glowing dwarf masses of purple very early in the spring the Aubrietias are unequalled. They are increased by division, slips, or seed. Seed of A. græca for instance, sown now will produce small flowering plants for next spring—fine plants for the year following; seedlings, however, vary somewhat in height and time of flowering. Panels of Aubrietias and dwarf plants of Golden Feather raised from seed sown in July or early August produce a brilliant effect. Primroses and Polyanthuses raised from seed sown now, and the best varieties increased by division, are suitable for small beds. Myosotises make attractive beds. Plants of M. dissitiflora and M. arvensis and its white variety raised from seed sown now or in early June will, if well cultivated, be in fine condition for next spring's display. Silene pendula and its variety compacta produce glowing masses of pink in early spring. Seed should be sown in early August in rows a foot apart, the seedlings being thinned out so that the plants assume a sturdy habit. Saponaria calabrica may be treated in a similar manner. Such other hardy annuals as Nemophilas in variety, Limnanthes Douglasii and Collinsias if sown in September and the plants grown thinly flower freely in the spring. Pansies, of which many varieties flower early and profusely, are spring bedding plants of great usefulness. By making a selection from the plants named you may with the addition of such bulbs as Crocuses, Hyacinths, Tulips, &c., render your beds more attractive in the spring than they are in summer, and even without bulbs the beds will have a very cheerful appearance. All the plants enumerated can during ordinary seasons be cleared off the beds in time for the summer-flowering and carpet-bedding plants. Spring gardening is worthy of being carried out by all who are willing to provide the labour required for carrying it out well. When double cropping of the flower beds is thus indulged in, more manure and additions of fresh are necessarily requisite than when summer bedding plants are alone employed for the adornment of the flower garden. Your other question is answered in "Our Letter Box."

SEAKALE (*Busy*).—After the blanching material has been removed the shoots should be cut off level with the ground. The longest of the "straggling stems" may be cut off in a similar manner. The ground between the roots should be enriched with manure, and may also be sprinkled with salt at the rate of 1 to 2 ozs. per square yard, keeping it from the crowns. After the manure has been forked-in the crop will be benefited if the surface of the ground is mulched with manure or short grass. New growths will probably issue in clusters. These must be thinned when the shoots are an inch or two in length, and those remaining will form finer crowns. It is no use dividing and replanting the old stools, but by cutting off a portion of the old stems this year and the remainder next year, and thinning the growths, the bed, if the soil is good, will be to a great extent renovated. We, however, also advise you to raise plants for a fresh bed. Procure new seed now, "crack" the hard outer cuticle and sow thinly in rows 18 inches apart, or in patches 2 feet apart as you prefer. Young plants are also readily raised from portions of roots, "thongs" as they are popularly termed. These roots, which should not be thicker than the little finger, if cut in lengths of 6 inches and planted, the thickest ends being just level, or very slightly below the level of the soil, will grow freely and form fine crowns in two years. If prepared in the autumn they form excellent crowns in one year. Try both modes of increase, sowing, and planting without delay.

GENTIANELLA SEED NOT GERMINATING (*A. B.*).—We can only account for this by assuming that the seed was not sown as soon as ripe, and the soil was not uniformly moist. When the seeds are kept for any length of time they do not vegetate quickly or surely. See reply to "J. D." in reference to destroying weeds.

VINE BORDER—PIPING (*Cambridge House*).—The Vine border may be at the west side of the house, but we presume you intend to have the border partly within as well as outside, so as to admit of the Vines being planted inside, the west wall of the house being arched to allow the roots to pass into the outside border. Two rows of 4-inch pipes along both sides of the house to be kept at a minimum temperature of 50° in winter will suffice, and one row along two sides and one end in the other compartment will be ample to exclude frost.

PERENNIALS (*Editor*).—At page 349 of our present volume is a list of over a hundred herbaceous plants, to which may be added Pinks of sorts, Iris germanica vars., Carnations especially Cloves, Picotees, Phloxes (florists' varieties), Hollyhock vars., Pentstemon vars., Pyrethrum vars., Antirrhinums vars. It is too late for planting perennials with safety, but a good beginning may be made by sowing seeds, the plants from which will flower next year. Do not sow later than the early part of next month. Some of those that may be raised from seed are Adonis vernalis, Allium alpinum, A. Victoriale, Alströmeria aurantiaca, Alyssum saxatile compactum, Anemone hortensis, Anthericum Liliago, Antirrhinum major and minus, Aquilegia chrysantha, A. vulgaris alba, Aster alpinus, A. tenuifolius, Aubrietia purpurea grandiflora, Auricula (Alpine), Carnation, Campanula macrantha, C. lactiflora, C. longifolia, C. pusilla, *Canterbury Bells—blue, white, and Rose, also double; Delphinium formosum, D. grandiflorum chinense, D. imperiale, *Dianthus chinensis fl. pl., *D. Heddewigi hybridus plenus, D. neglectus, Gentiana asclepiadea, G. lutea, G. verna, Pansy vars., Hollyhock, Hyacinthus amethystinus, Liatris spicata, Lupinus nigricans, Lythrum roseum superbum, Myosotis dissitiflora, M. sylvatica and var. alba, Papaver nudicaule, Pentstemon, Picotee, Polyanthus, Primula japonica, Saxifraga longifolia, Silene pulchra, S. regia, Brompton Stock, Sweet William, Verbena venosa, Viola in variety, and Wallflowers. Some of the preceding are biennials.

DESTROYING WEEDS ON PAVEMENT (*J. D.*).—If you apply a good dressing of salt during dry weather, sufficient to make the surface quite white, it will kill the weeds. One application a year is sufficient, and the longer the salt remains on the paths, &c., the more effectual it is. It is little use applying it during showery weather. A pound of oil of vitriol dissolved in about three gallons of water and sprinkled over about 10 or 12 square yards of surface will destroy weeds. It is necessary to prevent any edgings, such as grass or Box, being injured by the applications referred to. The vitriol solution should be applied by an earthenware watering pot, or if an ordinary watering can is employed it should be well washed out immediately after it has been used, as the vitriol acts injuriously on the metal.

WORMS IN ONION BEDS (*A Lady*).—We do not know of anything better than giving a good dusting over the beds with quicklime. The soot and lime you have applied must have been stale or applied in insufficient quantity, otherwise it is certain to stop the worms for some time.

HEATING POWER OF BOILER (*R. A. P.*).—Not having tried the boiler you name with a view of ascertaining its maximum heating power, we are unable to answer your question on that point. You are wise in your proposal to allow a margin relative to its heating capacity. If you state the extent of piping which you require to be heated easily to a hot-water engineer, he will supply the boiler of the right size for your requirements. You would do well also to consult him in reference to a nonconductive covering for the pipes. We have found dry sawdust very useful, but we think there is a material specially prepared for the purpose indicated. Wrought-iron boilers do not perish in the way you have been informed provided they are kept filled with water during the period that they are not heated. The heating power of boilers is greatly influenced by the arrangement of the pipes.

ROMAN VITRIOL (*A Lover of Rose Shows*).—Roman vitriol is sold under the name of bluestone or copperas. We have had no experience with mixing the paint you name, but we think oil is not necessary. You can readily ascertain the best mode by making a few experiments on a small scale. We shall be glad to have your opinion of the value of the paint after you have given it a good trial.

STANDEN'S MANURE (*Amateur, Ireland*).—You do not say to what plants you wish to apply the manure. About half an ounce to a gallon of water is, however, a suitable strength for most plants requiring more support than the soil and clear water afford them.

CUCUMBERS NOT SWELLING (*A. B.*).—Assuming the roots to be healthy, we can only account for the fruit not swelling by the blossoms not having been satisfactorily fertilised. As the weather becomes warmer and more air is admitted to the frames, an improvement will probably take place, and the flowers will set and the fruit swell freely.

APPLYING PARAFFIN TO BIGNONIA (*A Young Gardener*).—It would be extremely injudicious to apply pure paraffin to the stem of the plant. If you apply it at all it must be in a much diluted state—half a fluid ounce to a gallon of water being sufficiently strong to kill insects, and that we presume is all you require.

PROPAGATING FICUS ELASTICA (*M. N. G., Stoke-on-Trent*).—Your letter was inserted on page 344, and replied to by Mr. Shirley Hibberd on page 359.

INSECTS IN VINERY (*G. Mc G.*).—They are the imagos of Cenobium striatum, a beetle that is not known to be an enemy of the Vine, the larvæ generally feeding in old or decayed wood. Their appearance is most probably accidental, but it might be well to examine the wood of the Vines for any indications of larval attacks.

NAMES OF PLANTS (*G. P.*).—1, Luzula campestris; 2, Mercurialis perennis; 3, Lychnis dioica. (*J. H. W.*).—Saxifraga (Megasea) crassifolia ovata. (*C. B.*).—Ornithogalum nutans. (*Wm. Green*).—Oncidium Wentworthianum var. (*C. F.*).—Lonicera punicea. (*G. W. F.*).—Diplacus grandiflorus. (*E. C.*).—1, Pyrus salicifolia; 2, Abies canadensis; 3, Juniperus recurva; 4, Cryptomeria japonica. (*M. M.*).—Ægopodium Podagraria. We cannot publish the medical details.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

THE CULTIVATION OF LUCERNE.

THIS crop is a very valuable one as green fodder for horses, dairy cows, &c., and it may be grown with advantage upon all soils which are perfectly dry and free from springs or surface water, such as we often find lying about upon strong soils. Upon heavy clay land it is not only the water lying upon the top soil, but it is the impervious nature of the subsoil, which prevents this plant from seeking sustenance for its deepest roots and if the roots cannot dive down into the substrata the crop will dwindle away. This plant succeeds well generally speaking upon soils which are congenial to the growth of saintfoin, white and thin chalk soils in particular. There is, however, a difference in one respect, for we do not find saintfoin succeed well unless there is a chalk subsoil, or unless there is plenty of chalk supplied and existing in the top soil; but this is not so necessary for lucerne, for if the land is well tilled and enriched by liberal dressings of manure it will succeed upon sand, gravel, chalk, or dry loams of every shade. If, however, it is found that the subsoil of gravelly land or loams have an impervious stratum below where the plough has been accustomed to work such land should be subsoiled, and the subsoiling implement should follow the ordinary plough working in the furrow, and after being first subsoiled lengthways then let it be done in the same manner crossways. This will thoroughly stir and break up any existing pan or conglomerate of soils, and enable the roots of the lucerne to search the subsoil freely, not only for its subsistence but to enable it to hold on in the driest of weather. Soils with an impervious pan are generally too wet in the winter and too dry in the summer, simply because the firm base prevents or diminishes capillary attraction in the soil.

There are several methods of cultivation. First of all, when it is drilled with the view of cultivating the soil between the rows; and secondly, when sown broadcast with an admixture of grass seeds so as to furnish pasture on those cases when the crop is not taken entirely for green fodder. We will take into consideration first the preparation of the land for drilling and cultivating the crop. We know no better plan than to sow the seed after the land has been thoroughly well tilled and highly dressed, and sown with either Swedes or turnips, which should be consumed by sheep eating field hay, oil cake, beans, or peas, &c.; then let the land be ploughed two or three times, or if the season is very dry one ploughing and continued scarifying in the spring until the land is thoroughly pulverised. The lucerne seed may then be drilled about the second week in the month of May without any corn crop; 25 lbs. of seed per acre will be usually sufficient to insure a good plant, which is of the highest importance under this method of cultivation, because we have no other grass seeds to be sown with it to make up any deficiency in the plant. The rows should be about 12 inches apart, in order that the land may be cultivated by horse and hand-hoeing, not only the first season but in after years, and when the horse hoe is used freely between the rows and the drag harrow across them the crop may be kept quite clean for a number of years. The best implement for this horse-hoeing is the same which we use for horse-hoeing the wheat, &c.—that is, the common horse hoe used for root cultivation, the centre share being retained and the two side shares made to match the centre one. In this way the surface of the soil is well stirred, which not only destroys the weeds but gives air to the roots of the lucerne. There is, however, another plan of drilling, &c.—that is, at 7 inches apart between the rows to drill 20 lbs. of seed, and then harrow in the remainder after being sown broadcast. By this means the surface is well covered with plants quite sufficient to keep down the growth of small weeds until the first cutting is taken, which if the season is favourable may be done about the end of August or early in September; it will then give a nice cutting, which will clear away any weeds which may have arisen amongst the lucerne. Otherwise it may be pastured with cattle, but not with sheep, because they bite too closely and may injure the infant plants. There is still another plan we have adopted with success and with but little expense—that is, to sow the seed on land well tilled for wheat, and sow broadcast and harrow in the spring 25 lbs. of seed per acre; there are then no weeds to contend with, but a full crop will be produced to be depastured by cattle after harvest, and if the seed is sown and plenty of harrowing and rolling takes place afterwards it will not injure the wheat plants, but effectually bury and cover the seeds. When the seed is sown or drilled in either of the ways above stated during the following winter or early spring, not later than February, the lucerne should receive a good dressing of short well-decomposed farm-

yard or town manure, and not less than twelve or fourteen cart-loads per acre well spread and properly chain-harrowed in dry weather, or otherwise artificial manures may be applied, such as 3 cwt. of Peruvian guano or 2 cwt. of nitrate of soda per acre. In the second year a fair produce may be expected; the plants, however, will not be in the highest perfection until about the third year, and a dressing such as we have named may be applied each autumn or spring, and the abundance of produce and to some extent the quickness of the succession depends upon liberal manuring, and nothing pays better for it than green fodder crops. We may expect even in some adverse climates that the crop will be ready for the scythe about the middle of May, but earlier in favourable situations, and it will yield usually about 8 or 10 tons weight of excellent green fodder, equivalent to 2 tons of hay, for which it is not so well adapted as most other grasses, because of the great portion of woody fibre which it contains. This crop is not so much affected by drought as other grasses, in consequence of the roots of the plants searching very deeply in the soil for sustenance, and the stems shoot up immediately after the scythe, yielding in nine or ten weeks a second cutting, not quite so good as the first, and again after a like interval of time a third cutting. This crop is much relished by horses and dairy cows, and with the exception of saintfoin is the most wholesome and nutritious green food which can be given, especially as it has never been known for cattle to become blown or hoven with it, like they do with the clovers. Horses are not quite so fond of the second or third cutting as of the first, yet it is very valuable food, and especially when we consider the difficulty of obtaining a good supply of green fodder in a dry time, and the certainty that lucerne will give a valuable produce in the second and third cuttings in the driest of seasons.

We must now refer to the second part of our subject—namely, the seeding lucerne, with the view of obtaining not only a good crop and succession of lucerne, but pasture as well at other times when the lucerne is not in cutting for green fodder. We have before alluded to sowing the seed broadcast in the wheat, or it may be drilled; but at any rate, if pasture is required 6 lbs. of yellow suckling and 8 lbs. of permanent Dutch clover may be sown with the 25 lbs. of lucerne per acre at the same time. In this way we always secure a regular plant. If the lucerne should fail in patches the clover will fill up the space between the lucerne roots, and furnish excellent pasture after the cuttings in the autumn; the land will also be occupied to the exclusion of couch or water grass or any injurious and noxious weeds, and it further adds to the total produce per acre of food for cattle of the best quality. Thus the lucerne may be held on for a long period, for although on some soils and not properly managed as regards manure it may begin to die out partially at the end of seven or eight years, yet when pasturage is the chief thing required it may be held on for many years with good attention and liberal dressings.

WORK ON THE HOME FARM.

Horse Labour will be for some time engaged in preparing and in finishing the tillage for root crops, and in those cases where the mangold seed has not been put in the sooner it is done the better, for although we took a prize (the conditions being for late-sown roots), for a field of mangold last year sown as late as the 15th of June, still it is not every year that it can be done with the same advantage. Our crop was 18 tons per acre, which may be considered an useful crop considering the late period of drilling, and it was entirely owing to liberal manuring, good tillage, and leaving the plants thicker than usual, that we were able to secure such an useful produce. Under ordinary circumstances we should have preferred to sow Swedes at that date, but not having any other land in mangold upon the farm we could not afford to be without a stock of these roots for use in the following spring, for we always think that mangolds are like money to the farmer, and we cannot have too much of it if we only know how to spend it. Where the land is clean there will now be some portion of the land after trifolium ready for roots, either mangolds, carrots, or Swedes; and when the root seeds are put in at once, ploughing only after a green fodder crop, care should be taken to plough and work the land fine the same day, and drill the seed and manure in the afternoon or evening. This will insure the germination of the seed immediately, a most important point in all cases of one ploughing only, and it is the only safe plan to insure against the effects of continued drought; at the same time it is still the best management if the weather turns out showery after drilling. It is best either when cutting up the green crops for soiling cattle, or feeding off with sheep upon the land, that the crop should be cleared away square with the ridges, so that ploughing and drilling the next crop may be done immediately after the ground is cleared in order that it may not become too dry and sunbaked before ploughing; otherwise the soil will cleave up rough and require much labour to reduce it to a kind seed bed. Carrots may still be drilled, but it should be the white Belgian variety, as these will bear later sowing than the red or intermediate sorts, and if the plan which we advised in last week's work be adhered to a full crop may be expected. In continuation of the tillage for roots when the weather is dry ploughing, except the last or ridge ploughing, should be avoided by using only the scarifier or lifting drag. In case, however, that ploughing is really necessary to bring up more couch grass which may be under, care should be taken to work the land with harrows, roller, &c., as soon as possible after the ploughing, in order that the moisture of the soil may be retained. This is the great essential in all root-cultivation, for when the season is very dry the seeds oftentimes do not germinate until rain comes; but it must be borne in mind that however long the germination of the seed may be delayed the seeds of weeds are sure to grow let the weather be wet or dry, therefore we consider the great secret of successful root culture is to insure the germination of the seeds immediately they are drilled, and this may always be done in the driest weather by judicious management.

Hand Labour.—Couching work both for men and women will still be going on when the weather is suitable, and instead of giving so much labour in separating the earth from the couch with the object of burning in small heaps about the field, we prefer to shorten the harrowing and rolling work, and cart the couch away, although there may be a considerable quantity of earth attached, to a heap for burning, or otherwise to be laid out upon bare pasture land for its improvement. The coarse grasses and wild herbs and shoots of wood and brambles which grow upon the banks and borders round the fields, if cut when young make capital food for young cattle, store pigs, and breeding sows, also for dairy cows when their produce is sold for milk. We find that the animals will eat nearly the whole of the produce, and it pays well for cutting, because it not only feeds the stock in the yards and pens, but what is not eaten is trodden into manure under the animals, and when the banks and borders are cut twice a year it keeps the weeds and coarse grasses from seeding the adjoining cultivated lands, and if not cut for feeding and profit it must be cut and burned after harvest in order to keep the outsides of fields in a decent state for cultivation. To enable us to cut the banks properly for fodder we cut the wood which may be found upon them close, so as to leave only the naked bank, except in those cases of outside fencing where a trimmed hedge is required. The brood mares which have recently foaled may be put to full work for about a fortnight after foaling, or longer if they are not in full health. While the foals are young they should not be allowed to go out with the mares into the work fields, but instead let the mares return to them in the boxes at the end of about five hours. After about three weeks the foals may have a little sweet hay or some partially dried green fodder hung up in a bundle in the box to entice them and teach them to eat. The weaning calves, too, should now be allowed some sweet hay besides the milk or any substitute upon which they are feeding, and when they first go out to graze it should only be for a few hours in the day. The shepherds have lately experienced great difficulty in finding a sufficiency of food for the ewes and lambs since the water meadows have been finished grazing, and this scarcity, should it continue, will have to be met with a supply of oilcake or other feeding stuffs to maintain the condition of the stock.

THE SITTING HEN.*

It is certainly a sign of the great and intelligent attention which has of late years been bestowed on poultry breeding that we find new books on the subject continually coming out. We have seen several devoted to special varieties, and have read them with pleasure and profit. A person who has some general knowledge of poultry may wish for more special information on some one special breed, and such he would certainly find in such works as Mr. L. Wright's "Brahma Fowl" or Mr. T. C. Burnell's "Exhibition Dorking," if those varieties happened to be his *specialité*.

The heading of this article is taken from a little work to which our attention has been invited. We must say that we cannot exactly see the use of a monograph on such a subject; rules for the management of sitting hens, at least as useful as those in the pages now before us, are to be found in any of the well-known poultry books, while special acquaintance with the habits of broody hens is of little use to a person who knows nothing of the general management of poultry. As, however, the work now before us is largely advertised and may meet the eyes of many young fanciers, we feel bound to give our opinion of its merits and demerits. It opens with a modest little introduction, in which the author announces that to suit the knowledge, or rather ignorance, of all fanciers he begins (we will not say *ab ovo*, for he begins somewhat before the egg), but *ab initio*. There is one sentence in this paragraph with which we cordially agree—"If the matter (*i.e.*, poultry breeding) is treated as a sort of an off thing of little or no importance, and everything to be done looked upon as a trouble, failure will most assuredly follow, and to those harbouring these ideas, and who have not already commenced, my advice is, 'Don't,' and to those who have, 'Give it up.'" We have repeatedly given it as our opinion that what is worth doing is

* "Guide to Successful Chicken-breeding. Management of the Sitting Hen during Incubation." By H. Pritchard. London: Central Agency of Agriculture, 29, Moorgate Station Buildings, E.C.

worth doing well, and that people who cannot take care of their birds had better not keep them.

The author proceeds to recommend Brahmas as universally the best mothers; we do not quite agree with his conclusion or his disparagement of other varieties. "Dorkings," he says, "are not sufficiently hardy and totally unsuited for a confined space." We have used hundreds of Dorkings as mothers, and have hardly ever known one sicken in the coop or seem any the worse for moderate confinement in it. "Game," again, we are told "are too small to cover a fair number of eggs or chickens when hatched." We certainly should not call Game as now shown small birds, and we know from experience that they have a peculiar knack of covering a large number of eggs and chickens, and generally keep them warmer than any other breed. For the smaller varieties we prefer them immensely to Brahmas as foster mothers, and they remain much longer with their chickens.

In the two next paragraphs Mr. Pritchard specially recommends hens in their second or third year as sitters, and dictates an exciting diet "such as horseflesh, hemp seed, buckwheat, and buckwheat meal," to produce a speedy desire for incubation. We certainly have never tried such foods and so are hardly able to pronounce an opinion upon their effects, but should be inclined to fear that apoplexy would supervene and cause some disturbance to the sitting arrangements. As to the age of hens for sitting we believe all rules superfluous and absurd; a practised eye will often see in a broody pullet the promise of an excellent mother, and, on the other hand, when once a hen has proved a satisfactory sitter our advice is to keep her as long as she lives. We have had hens of various breeds which for five or six successive years always reared our earliest broods. The observations on "sitting nests" show some common sense. The author observes, "Farmers, the most neglectful of poultry keepers, as a rule give the sitting hen no further attention beyond placing the desired number of eggs under her, and the result is 'bad luck.' Where practicable a spare outbuilding converted into a sitting house is by far the most advisable arrangement." It is quite true that as a rule farmers are very careless about their poultry, but where a person about a farm will give some real care and attention to the birds we should be loth to advise that all hens be carried off to a sitting house. Those which select strange out-of-the-way corners for their nests almost always bring off fine broods; of course care should be taken that only such are allowed to sit as have a nest to themselves free from the intrusion of other hens. Many entirely refuse to sit when moved to a sitting house. Then the author's arrangements for this department are somewhat singular; each hen is to have a kind of run 5 or 6 feet long in front of her nest, in which she is to help herself to food, save once a week, when she is to have an airing. Mr. Pritchard gives it as his opinion that "lifting the hen daily from her nest is using her to a bad habit and giving the owner much useless trouble." We entirely dissent from this view. The eggs require fresh air, and the hen requires daily exercise; in case, too, of the fracture of an egg a daily inspection of nests is necessary. We have invariably found our hatches bad when strict regularity was not kept in taking the sitting hens off. The author of this work states his belief that "the great thing needful during incubation is warm moisture," and further on, "the error of giving too little moisture is more likely to be made than that of giving too much." We quite agree that there is best chance of a good hatch in a moist warm atmosphere, but after great experience we have come to the conclusion that all watering of eggs requires great caution. The hen which chooses her own nest out of doors is proverbially the mother of a fine brood, but her nest, though on the moist ground, is almost always in a snug corner protected from rain, and we have seldom had good broods from a nest into which rain has penetrated.

Some of the advice in the concluding pages of the pamphlet we consider bad, and candidly say so. We are told—"I am totally opposed to the examination of eggs (either on the eighth or any other day) for the discovery of their fertility or infertility. Such pettifogging anxiety seldom does good, and very often harm. I never yet heard of an extra chicken being added, even by the most experienced addled egg detector; but I have frequently heard of eggs being broken whilst undergoing the inspection, and chickens lost by taking away eggs which were, when too late, discovered to be fertile. The hen, too, sits the reverse of better for these disturbances, as she is liable to become restless and nervous, thus increasing the egg-breaking chances." For our part we have always found the testing of eggs of the very greatest use. We have tried thousands, and never remember breaking a single one. The appearance before a candle of a fertile egg after eight days' incubation is so utterly different from that of an unfertile one, that no sensible person can fail to discriminate between them. We cannot remember a single instance in which we have by mistake thrown away a good egg. Often in such a season as we have lately experienced a whole sitting are clear, in which case the hen without any hardship may be reset with a fresh lot, or when two or three have been set together all the good eggs may be given to one or two; even if this is not done when the useless eggs are removed more warmth will be given to those that remain.

Mr. Pritchard thus ends his remarks on incubation—"If the knowledge which I have attempted to convey has been acted upon I have little fear of more than two or three valueless eggs, and the reader will, I hope, have no cause to regret perusing this little work." Certainly any knowledge which would prevent there being more than two or three valueless eggs in twenty-six (the number suggested to be set at once) would indeed be valuable, and the reader would be most unreasonable who should regret perusing the work which contained it, even were its cost far higher than that of the one before us; but we have failed to find in its pages any information which would lead us to expect such a startlingly good result.

There are many sensible remarks in the fifteen pages of the pamphlet, but its instructions as a whole are not such as to lead us to wish or expect it to supersede the chapters on incubation in the standard poultry books.—C.

VARIETIES.

We observe some curious statistics in a letter written by Mr. T. C. Burnell to a contemporary. He states that from an analysis of the index of the last Crystal Palace Show that there were fifty-nine exhibitors of ten or more pens of poultry. Of these fifty-nine large exhibitors no less than thirty-one are members of the Poultry Club, and of the whole 2500 pens exhibited over eight hundred belonged to members of the Club.

—— A simple yet useful addition to farm, stable, and garden brooms has been effected by Mr. Wright of Salisbury. The head of the broom is made to form a brush, so that the boots of anyone using the broom can be cleaned in a convenient manner. Ordinary brooms are frequently used for this purpose, but the new appliance possesses manifest advantages and is likely to become popular, as the broom serves its double purpose well.

—— The entries in the Live Stock department of the Bath and West of England Society and Southern Counties Association, which opens at Exeter on June 2nd, are as follows:—123 horses, 38 Devon cattle, 43 Shorthorns, 33 Herefords, 48 Sussex, 50 Jerseys, and 38 Guernseys. There are 207 pens of sheep, among which are 21 Leicesters, 21 Cotswolds, 44 Devon Longwools, 28 Southdowns, 28 Hampshire Downs, 18 Somerset and Dorset Horns, and 14 Exmoors. Of Pigs there are 81 entries, of which 35 are Berkshires. Each section of the Stock department contains specimens from all the most successful breeders in England; and there is good reason to presume that the Exhibition will be one of unusual merit in many of its classes. In the Poultry department there are 401 entries, of which 114 are Pigeons. These figures, however, in many cases representing a pair of birds to each entry, the total number of birds staged will, of course, be greatly in excess of that number. The exhibition of Implements will be remarkable not only for its extent, but for its generally attractive character. The Horticultural department will, as usual, form an attractive feature of the Exhibition, and will consist of a number of rich specimens from Devon and the adjacent counties.

—— In the model farm buildings of Sir Henry W. Peek, M.P., at Wimbledon there is much that merits notice. Sir Henry's splendid head of pure Alderney cattle contains animals of great beauty, and refusing to be separated from the animals is a fine red deer which has been brought up with them, and is as tame as the pretty heifers. The Abyssinian sheep are extremely distinct; they are covered with hair instead of wool, and are quite white except their heads, which are as black as if dipped in a tar barrel. Singapore pigs arrest attention, not by their beauty so much as by their rather rough and semi-wild appearance. They have passed through the cold winter without injury, and are increasing in numbers. A cross has also been effected between this and the small black English breed, the progeny being very novel. Rabbits are in great numbers in well-appointed pens. All these and other animals are well cared for and are in the best condition. In the park adjoining is a splendid collection of waterfowl. A pair of emus have the range of a small paddock, and peacocks roam at large over the beautiful grounds. Sir Henry and Lady Peek are great admirers and protectors of animals and birds; and their manager Mr. Ollerhead takes as much interest in this department of his charge as he does in the gardens that he manages so well.

—— About eight hundred horses and one thousand cattle have been entered for the great Agricultural Exhibition to be held in London next month, besides sheep and pigs in proportion. One remarkable feature would be the show of foreign dairy products, of which there will be several hundred examples, chiefly from France and Scandinavia. There will also be exhibited one hundred and fifty ancient implements and their modern representatives, selected from the winners of the Society's first prizes. The railway waggons for the carriage of meat will be tried, by permission of the Directors, on the London and North-Western Railway Company.

—— Mr. Shirley Hibberd, in recommending to farmers a hedge to grow under trees, writes as follows in the *Mark Lane Express*:—"The subject has engaged my attention more or less for thirty years, and many trial plantings of trees and shrubs have been made here expressly to test their relative capability to endure

without harm the shade of trees and walls towering above them. The common Thorn (Cratægus oxycantha) does not thrive if heavily shaded, but we find a capital substitute for it in the Myrobalan or Cherry Plum (Prunus cerasifera), a vigorous early growing tree with leafage of a cheerful light green colour. This has been largely propagated by Messrs. Ewing of Norwich, who can supply it in quantity at a cheap rate. Amongst hundreds of subjects that have been tried under the heavy shade of Elms, Chestnuts, and other trees that have a habit of making the ground bare beneath them, we have found the best for the purpose to be common Holly, common Yew, and the beautiful though cheap Holly-leaved Barberry (Berberis aquifolia). These are all well adapted to plant under Elms in a clay soil, and are, when well established, proof "against the inroads of youth."

—— THE new fodder grass, Teosinte (Euchlæna luxurians), which is being distributed by Messrs. Christy & Co., has attracted considerable attention in France and her colonies during the last few years on account of its excellent qualities and enormous yield of foliage. It is a native of Guatemala, and was first introduced to the notice of the Acclimatisation Society of France in 1872 by Mons. Durieu de Maisonneuve, and was tried in various parts of the south of France with considerable success, the plants growing to a height of 10 feet, and each plant throwing up about one hundred stems. The Teosinte is a handsome plant, having leaves 3 to 4 feet long and 2 to 3 inches wide, and having an appearance resembling maize, but on a much larger scale; the cob, as in that plant, is contained in a leafy sheath, from which the stigmas protrude in a tassel-like manner. It appears to be a fodder plant of considerable promise for warm climates, and might advantageously be tried in Cyprus and some other of our colonies.

THE BAR-FRAME HIVE SCIENTIFICALLY MANAGED.

SEVERAL times I have commended the Stewarton hive and tried to explain its advantages and best features; I now turn to the bar-frame hive with a desire to say all I can in its favour. Many other writers and practical men have fairly advocated the advantages of the moveable-comb system. Though I have not read every book or article that has been written on the subject, I have read much and examined many bar-frame hives with a desire to find out for my own profit all the advantages they possess. The moveable-comb system has advantages, I may say great advantages, but these advantages never appeared to me so great as the disadvantages and drawbacks of the bar-frame hive. The one counterbalanced the other. Let us notice the Woodbury hive. It was made of wood one-third too small for great results, and it was not made for collateral enlargements or for eking. These are some of the disadvantages of the bar-frame hives, and nineteen out of every twenty of both English and foreign frame hives are made on the same principle and contain the same objectionable features. Mr. Woodbury found out by experience that wood was not the best material for hives, and afterwards his frame hives were made of straw, and these were sold and used as the Woodbury hive for many years. Mr. Raitt, whose name is becoming a household word among advanced apiarians of both England and Scotland, is now using a hive very much better in my opinion than all the bar-framers I am acquainted with; and moreover, by great intelligence and scientific knowledge he appears to manage it more successfully than many or all who advocate and practise the moveable-comb system.

Mr. Raitt's hives are made of wood with cavity walls, front and back. The inner walls or casing are made of half-inch stuff, and the outer walls of deal 1 inch thick. The ends of the hives are made of good thick deal without inner casing, and so far asunder as to admit sixteen bars of comb, the bars of course resting on the inner casing. So far as the numbers of combs are concerned these hives are of no fixed dimensions, and may be contracted by moveable partition walls to six or enlarged to sixteen bars. The floorboards are fixed to the outer casing. The hives are without legs or laps, and are placed on banks of dry turf cut from a moor. They have capacity and enlargibility, which are good qualities—qualities which all hives, especially bar-frame hives, should possess. I am pleased with the improvements now mentioned, and commend them to the attention of all bee-keepers. I do this heartily. On more than one occasion I have compared the Stewarton hive with bar-frame hives. In doing so I gave my right hand to the Stewarton, and my left to the bar-frame hive. I now give my right hand to the improved bar-frame hive because it has the qualities of size and adaptability, has cavity walls which facilitate ventilation and the elimination of moisture, and all its combs or bars are of equal size. The Stewarton hive is octagonal in shape, and therefore its bars are not of equal length, and cannot be shifted from side to centre or from centre to side; and this is a great disadvantage in the moveable-comb system.

In the pages of this Journal Mr. Raitt has explained how he manages his hives, and this I come to notice with approval. The banks of dry peaty soil on which his hives stand are better than posts of any kind, and help to keep the hives cool in summer and warm in winter. Standing on the ground they are less exposed to storms of wind and are more easily covered. Peaty soil impervious to moisture is not easily procured in some places, but all bee-keepers should keep their hives near the ground. Stilts are objectionable. Another point in his practice cannot be too well known. At the end of the season, say in October, he removes the outside bars of comb and winters his bees in six or seven central combs, and the spaces made empty by the removal of the bars are filled up with dried hay or fern fronds to keep the bees cozy and warm during the cold months of winter and spring.

Every year we become more fully convinced of the importance of protecting hives from cold and wet. As the bees breed and cover their combs in April, May, and June, the bars of comb which were removed from them in autumn are replaced in their hives as fast as they can be covered with bees and filled with brood. Thus a great population is produced in every hive for filling supers rapidly off the clover. Mr. Raitt's hives being large he places a large number of sections—whole tiers—on them at once, and sometimes sections are placed in the outside bars of the hives. This is capital practice, giving the bees plenty of play-room in the best of the season. As soon as sections are filled they are removed and empty ones inserted; of course small pieces of natural white comb or narrow strips of artificial foundation are used as guides to the bees. After the honey season is over he gives his bees a bannock of peameal and some flour and candy cakes to induce a hatch of brood. The hives are well covered with dried brackens, and thus made snug and dry till spring.

All I know of Mr. Raitt is gathered from what he has written; and I am glad to see and to say that he has evidently brought great intelligence and practical experience to the task of improving and perfecting the system of managing bar-frame hives, and I trust that all who use bar-frame hives will receive additional light and guidance by studying the system thus roughly indicated.—A. PETTIGREW.

EARLY SWARM.

A FRIEND of mine, Mr. Ray Tyrrell of Horndon-on-the-Hill in Essex, had his first swarm of bees on Monday, the 12th inst., between eleven and twelve o'clock. I examined my own stocks last night, and although strong in bees last autumn and this spring I do not think they will swarm for about a fortnight, owing, I think, to the late season.

I will mention a very easy way of getting rid of the bees from a super after being taken off. Take the super off in the evening, and when it is dark put it just inside an open window with an opening towards the outside. In the morning all the bees will be gone, when the super should be removed before robbers find it out.—TOM TOWER, *Essex*.

THE FERTILE WORKER.—No. 4.

I TOLD you how upon the 28th of April I calculated the drones would hatch out from the eggs laid by that fertile worker in the experimental hive which I had divided into two parts. On the 27th ult. I examined carefully and saw two drones, but fearing they might have entered the hive accidentally I passed them by. On the 28th ult. I saw a drone nice and fluffy, as just come out of his cradle. For me the point was decided: however, we will see what the morrow brings forth. On the 29th ult. I found several nice and fluffy young drones, and actually saw one emerge from its cell. Which variety? "A North African variety drone." I told you how at the first I took all brood; every frame of comb from that hive gave empty frames of comb only, and one frame of Italian eggs and larvæ. I argued that any fertile worker appearing must be either a North African variety, with laying powers latent up to the time of making the hive queenless, or an Italian which could only come from a late-in-life-fed larva.

The result goes to prove, and to me conclusively, that among bees are certain individuals in whom is latent only, the power to lay eggs and take upon themselves queenly functions. This point arrived at we cannot be surprised if, in making a hive queenless for any purpose, these pests immediately appear. To me it would appear that the bee so endowed by Nature fulfils its usual routine of duties in the hive until the moment arrives in which the latent power is called forth. Whether this bee ever flies in search of pollen or nectar is a question I cannot solve, but as numerous efforts to get rid of a fertile worker by removing the hive with one in it to a distance from its stand, and then shaking the bees off the frames into the air when all those having flown before seek their old home on the old stand, have resulted in a successful riddance of the pests, it may be fair to assume that she is a born stay-at-home.

Having held what I will call the "latent power" theory, I cannot readily express the anxiety with which each day I examined those drone cells, and the pleasurable excitement that coursed through me on seeing my surmise verified.

The other portion of this experimental hive, and which I told you had also developed a fertile worker, I examined each day, and on the 26th and 27th ult. there were the fresh eggs and the larvæ

with a diminishing population. On the 28th ult. as far as this portion of the hive is concerned the experiment came to an abrupt termination, for I suddenly came across a North African variety queen. 29th and 30th ult. there she is still; eggs seem diminished in number, not increased. Now this may introduce an element of doubt into the mind of some reader who may say I had overlooked her. This cannot be, for if there were a queen at all escaped me she must be an Italian, seeing they had naught but Italian brood to work upon, I having in the first instance removed the North African queen and all brood. My Italians are all Swiss Italians from Bellinzona, and very strongly marked is the contrast to the indigenous variety; they were all mated where born. But I can tell you how it does occur that that queen is in that hive.

On the 26th ult. a small Arab hive 2 yards from the experimental one threw a swarm. When I say there were over forty to fifty queens in it I know I am within the mark. Queens were flying about in all directions, and this queen is just one of those. That others attempted to enter other hives I feel sure, for the morning of the 27th ult. I found two dead queens at the door of one hive, near the one that swarmed. Fortunately this queen appears on the scene too late to alter the result of my experiment. Dzierzon and Von Berlepsch say there is generally only one fertile worker in a hive. I hold there may be more than one with latent powers actually developed at work in a hive, but many having the latent power only lacking the opportunity to call it into action. The division of the hive and the presence of a second fertile worker seems to me to prove this, and the wonderful rapidity with which this latent power may be called into action. If some of your readers will follow out the course of experiment I have endeavoured to describe they will find the interest daily increase, and afford a fascinating subject of thoughtful research, ultimately most undoubtedly aiding them in the after management of their hives. I must defer to my next letter the details of an interesting case in point.—ARTHUR TODD, *Algeria.*

AMERICAN BEE-KEEPING.

THE following extracts from a letter I have received from an American bee-keeper I think may be of value to some of the bee-keeping readers of the *Journal of Horticulture*. Even with the good management described the bee-keeper cannot afford to do without rolled comb foundation. It will reward the purchaser for his outlay if freely used in supers or brood box. Americans, it seems, are likely to prefer having it built out in the brood box before placing it to be filled on the top of the hive.—J. H. ELDRIDGE.

"I am visited every few days by bee-men who claim not to be so successful as I am in obtaining honey, and I gather from them that I am noted in the bee world for keeping my stocks in the best possible condition for storing honey. The consequence is I have a kind of set speech for the purpose that seems to fill the bill for all of them. I believe if there is anything else besides securing a constant flow of honey it is in my mode of management in swarming. I do not recollect giving it you before, so will give it now as clearly as I can. Commence as early in the spring as the season will justify, and make one nucleus for every four hives and raise queens as fast as you can. As soon as you have a queen fertile cage her and put her on the top of the brood frames, and the bees will feed her. I have had twenty-five in one hive for three weeks all right, with the old queen laying away in the hives. So when the swarming season commences you have a good stock of young queens on hand.

"Now, when your swarm issues, as soon as you are sure the old queen has left the hive pick up the hive and set it in a new place, and turn the young queen loose immediately; hive your swarm and set it where the old one stood; or if the queen's wing is clipped, pick her up, put her in a cage, move away your old hive, put the new one in its place, and when the bees return liberate the queen; but in all cases move the old hive and put this young queen in immediately. If the hive is allowed to remain on the old stand some of the old bees will always return from the fields on the swarm, and you risk the life of your young queen; but if she takes possession she will destroy all queen cells, and being a young queen it stops after swarming, and she commences depositing eggs soon, and the result is that in a few days you have what would be the second and third and perhaps fourth swarm in the hive to store honey, with a laying queen to boot; whilst the swarm has the old queen and all the bees that went off with the swarm, and if set on the old stand all the bees that were in the fields when the swarms went off, and all that ever worked the place. Now you have doubled your stock, and both are in good condition, and likely to stay so unless the old queen is exhausted; if so, you can replace her after the swarming season with a young one. I have in my twenty years' practice, and twelve years on the so-called scientific principle, tried almost every plan devised, and consider this far ahead of all others.

"Our farms are divided by hedge fences kept fairly trimmed, so that they average from a rod to a rod and a half in width to each hedge, taken up with hedge proper and weeds. I sow the plant (Scrophularia marylandica) along these hedges and along the sides of the roads, which are 4 rods wide and often not more than 10 feet of them used for road purposes, brush pasture along the creeks is filled, and the owners of the land even take care of it for me when they can. Everybody in this section knows its value, and would not drive over it on the road if they could help it. I have known neighbours living two miles from me to cut other weeds down along their hedges and let this plant stand, although they had no bees. The result is that in nine years' careful sowing in this way I have every hedge, road, and brush pasture full within miles of my apiary. While white clover and bass wood bloom we have no need of the scrophularia, but just as they cease it comes in and lasts till frost; this carries us to the 25th of August or 1st of September, when the fall honey season commences, which is better than the spring. Without this plant, there is a complete absence of honey between the two honey seasons, consequently the queen ceases laying, old bees die off, and no matter how bountifully the fall bloom yields, the bees are in no condition to gather it; but with the aid of this plant, coming in at that time, the queen continues laying, and your bees are in the best possible condition for the fall yields. In your case your queens would with its aid breed up much stronger colonies for going into winter quarters. When my colonies came out of their winter quarters they were strong enough to gather surplus honey if it were in the fields.

"We are getting comparatively nothing for any of the productions of our farms. Honey coming under the head of luxury meets with poor sale. I am selling as fine honey as I ever saw at 6 cents per pound, comb at 10 cents, and slow sale at that. My report for last year is as follows:—I started with fifty-four stands, fifty good, and four that were weak, which were used for queen-raising. I had 9372 lbs. of extracted honey, and about 400 lbs. of section box honey. I have yet about six barrels of extracted on hand, four of them filled with honey made from Scrophularia marylandica. If the hoops and staves were removed from these latter on a cool day it would stand alone, and yet there is not a granule in it. It is as transparent as glass, having a brown tint and most exquisite flavour. Whether it ever will granulate or not I cannot say, but it looks doubtful."

OUR LETTER BOX.

CRAMPED CHICKENS (*C. M. C.*).—Warmth is the best remedy. Keep them in a room where there is a fire.

CHERRY BRANDY (*A. D., Isle of Man*).—Place the sugar in a vessel and pour as much boiling water on it as will dissolve it thoroughly and no more, when the syrup is cool add it to the brandy. About 3 lbs. of sugar to every twenty gallons of liquor is the right quantity to apply.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. May.	9 A.M. Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	In the Day. Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 14	29.833	52.3	48.0	S.	49.2	57.3	48.3	112.1	47.0	.388
Th. 15	29.960	48.3	43.3	N.W.	48.6	50.6	43.2	92.0	40.8	.305
Fri. 16	30.111	49.2	46.0	N.	47.2	54.8	40.7	95.0	40.6	—
Sat. 17	30.045	53.6	47.9	S.	47.1	58.9	36.8	100.8	33.2	.163
Sun. 18	29.614	48.8	48.0	S.E.	47.8	57.9	46.9	78.0	46.0	.035
Mo. 19	29.810	52.0	48.6	N.E.	48.0	64.0	45.7	117.3	42.0	—
Tu. 20	29.981	52.5	50.0	N.	50.1	69.0	43.1	120.9	38.7	.020
Means	29.906	50.9	47.4		48.3	58.9	43.5	102.3	41.2	0.743

REMARKS.

14th.—Cold with heavy showers during the day, thunder and hail 2.10 P.M., thunder 2.15 P.M., lightning and thunder 3 P.M., hail and heavy rain; sunshine for short time at 3.45 P.M.; showery evening.

15th.—Windy, dull, cool morning; rain commenced 10.30 A.M. and continued throughout the day.

16th.—Fair but very dull until 5 P.M., when for two hours it was bright and very fine; foggy in evening.

17th.—Fine day, rather windy, overcast at times; rain began at 9 P.M.

18th.—Rainy morning and warm, heavy rain about noon; fair in afternoon but thundery; fine evening.

19th.—Fine, warm, very pleasant day.

20th.—Foggy, close, warm morning; showery afternoon; misty damp evening.

Temperature higher, but still below the average, especially the day temperatures.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 21.

BUSINESS has been fairly brisk, Strawberries being in good demand, while Grapes are only cleared at lower prices, the supply from the Channel Islands being good.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples	½ sieve	5	0	to 6	0	Melons	each	10	0	to 15	0
Apricots	dozen	0	0	0	0	Nectarines	dozen	0	0	0	0
Chestnuts	bushel	12	0	16	0	Oranges	℔ 100	4	0	12	0
Figs	dozen	12	0	18	0	Peaches	dozen	18	0	36	0
Filberts	℔ lb.	0	9	1	0	Pears, kitchen	dozen	0	0	0	0
Cobs	℔ lb.	0	9	1	0	dessert	dozen	0	0	0	0
Grapes, hothouse	℔ lb	3	0	8	0	Pine Apples	℔ lb.	2	0	4	0
Lemons	℔ 100	4	0	8	0	Walnuts	bushel	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 29—JUNE 4, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age. Days.	Clock after Sun. m. s.	Day of Year.
29	TH	Royal Society at 8.30 P.M.	67.5	44.1	55.8	3 53	8 1	0 a 20	0 33	8	2 53	149
30	F	Manchester Show.	68.4	44.7	56.6	3 52	8 2	1 42	0 49	9	2 45	150
31	S		69.4	44.8	57.1	3 51	8 3	3 7	1 5	10	2 37	151
1	SUN	WHIT SUNDAY.	68.4	45.9	57.2	3 51	8 4	4 35	1 28	11	2 28	152
2	M	Royal Horticultural Society's Popular Flower Show,	68.9	45.1	57.0	3 50	8 5	6 5	1 46	12	2 19	153
3	TU	Zoological Society at 8.30 P.M. [South Kensington.	69.4	44.2	56.8	3 49	8 6	7 34	2 17	13	2 10	154
4	W		69.3	44.4	56.9	3 48	8 8	8 50	3 0	○	2 0	155

From observations taken near London during forty-three years, the average day temperature of the week is 68.7°; and its night temperature 44.7°.

STRAWBERRIES FOR FORCING.

AMONG the things to be reckoned on this year will be the great difficulty of securing early runners for layering. For two seasons runners have been late; this year they may be expected to be later still, and also poor. It is not too early, then, to see if anything can be done to gain time either by changing our *modus operandi* or by selecting other varieties for forcing purposes.

The days of our good old friend Keens' Seedling are evidently numbered for this work; not that it is an inferior Strawberry, but it requires to be grown well, and this winter has cut it down so severely that strong early runners will not be procurable. Forced plants carefully managed and planted out early will probably produce the best runners of this variety and its near kin Sir Joseph Paxton; for unprotected plants of these sorts have had every leaf cut off by the frost, and they are consequently growing comparatively weakly.

Those who have not yet tried the plan of layering into the fruiting pots may do so with advantage this season if they will do it properly and without prejudice. I have for several seasons given up the old plan of layering into small pots, and I am convinced that the gain is equal to a fortnight's growth; or, in other words, I would say that late runners, layered properly into their fruiting pots and treated well, will produce results equal to early runners layered in small pots and otherwise grown on in the best possible way. In a late season, when no early runners are procurable, this is, of course, an immense advantage. The saving of labour, too, in these economical times is worth consideration. It is no trifling matter to repot a thousand or two thousand Strawberry plants, and in most places there is an extreme difficulty in finding the time to do it just when and how it ought to be done. Watering, too, takes a long time when small pots are employed, and unless they are plunged one watering is not sufficient for a very hot day. Well, then, my advice is, Give up this plan. You can do better, as I shall direct. The watering difficulty will be reduced to a minimum, the time required for repotting will all be saved, the plants will have no check when severed from their parents—for they may remain connected as long as they derive any benefit from it—and when they are shifted they may be at once placed where they are to remain till winter. When it is remembered that no check in summer means no red spider in spring it will be seen that I do not over-estimate the advantages gained by the mode of culture suggested.

But in order to reap the benefits I have enumerated it is necessary to make preparations beforehand. We must remember that the soil we use has to sustain gross-feeding plants for nearly twelve months; it must be rich and yet sweet, firmly pressed and yet not capable of becoming waterlogged. A moderately heavy loam which will not bind together should form the basis, and if such a soil is at hand nothing else is required except manure. In making a soil rich we must guard against making it sour or too light. If the staple is too heavy it can sometimes be made lighter and richer with the same material; but supposing it to be mechanically right and only lacking richness, then a small quantity of strong manure is all that is necessary, and I know of nothing better than nightsoil for the purpose. If this can be procured from a dry earth closet, spread it thinly on new loam, stack up for a fortnight, then chop down, spread it out, turn it two or three times at a couple days' interval till it is all thoroughly mixed and so dry that it will not bind, and it will then be fit for use. If the soil is too light this defect can be easily remedied by drying some clay in the sun or by fire heat, pounding it up to dust, running it through a fine sieve, and then thoroughly mixing it with the soil. On the other hand, should it be too heavy or adhesive there is nothing better than burned clay for a remedy.

The varieties I have grown in pots this season are Keens' Seedling, Vicomtesse Héricart de Thury (syn. Garibaldi), Sir Joseph Paxton, and President. Next season I only intend to grow the first and last named. As I said before, Keens' Seedling is a good Strawberry: I have had many fruits of it this season nearly an ounce each in weight, five fruits turning the scale easily against a quarter of a pound, but there were often only two or three such fruits on a plant, the rest being small. Sir Joseph Paxton is distinct from Keens', from which it is evidently a seedling, but I fail to see that it is any improvement on that variety. "The Vicomtesse" is everybody's Strawberry, and there is this peculiarity about it, that it is greatly improved by forcing. As an outdoor Strawberry on a Strawberry soil I do not consider it worth growing, but it will produce an abundant crop where other Strawberries will not live, and as a forcing Strawberry one can scarcely fail with it if trying to do so. I believe my whole batch of several hundreds would average ten even-sized fruits, not so heavy as the Keens' Seedling I have mentioned; the general run of these are not much above half an ounce in weight, but there is little to choose between them, all being presentable at table in the early Strawberry season, and every plant producing its crop. There is another peculiarity about this Strawberry, in that it may be gathered direct from the forcing house with the flavour nearly, if not quite, as well up as if finished off in a cool house. Amateurs with only one house should make a note of this. Yet another good trait in its character: when forced and planted out early it is the best of all autumn fruiters; several dishes were gathered last September and October quite equal in quality to those the same variety produced in June.

When President comes in there is, in my opinion, no other Strawberry either indoors or out to equal it, and from the end of April one cannot do better than depend on that excellent variety.—WILLIAM TAYLOR.

BEDDING-OUT.

THE operations to which this term applies consist in planting out Geraniums and other half-tender plants which are generally used for adornment about our gardens from June to the end of September. In ordinary seasons the

period named might be extended from a fortnight earlier until a month later than the time here given; but this season we fear the "bedding season" will be shorter than usual, as it will not be safe to risk tender plants out in the open ground before well into June, and in late cold districts about the beginning of July will not be too late. By the end of July the plants will barely have established themselves, and many will have to be cut up in August to afford autumn cuttings for the following year's stock, so that in most cases the "bedding" display of 1879 will, even if it is "a thing of beauty," certainly not be "a joy for ever."

As gardeners, however, we, who are always expected to surmount the greatest obstacles and defy the backward influences of the weather, will have, as usual, to make the best of our difficulties. The first step towards doing this will be to make sure the weather has settled before the plants are finally planted. It is much better to be a fortnight late than to put them out when there is the slightest danger of their being injured or thrown back. For several years we have been in the habit of planting out our Geraniums, &c., about the 20th of May, but we shall see the first days of June before they are planted this year, and plants of the Coleus description will not be out until the middle of June, although we have frequently had them out by the 1st of that month.

All the hardiest plants should be planted first. Pyrethrums, Pansies, Violas, Stocks, Asters, and plants of that kind should be put out at once if not already planted; Geraniums, Calceolarias, Verbenas, &c., next; then Coleuses, Iresines, Alternantheras, and subtropical plants last. In all cases the beds should be quite free from weeds, in good working order, and pretty rich.

Bedding plants planted in a poor unkindly soil such a backward spring as this would in all probability have a half-starved look during the whole season, and this must be avoided as far as possible. Where the beds are not rich with manure a small quantity of well-decayed material, such as old Mushroom-bed refuse, should be placed round the roots of each plant. Showery weather should be taken advantage of for planting, as nothing makes the plants grow so freely as a genial shower in mild weather. When it does not rain, and the soil is very dry at planting time, the plants must be thoroughly well watered at the root in the evening of the day in which they are planted. The leaves need not be watered much, unless it be to wash the dirt from them, but give abundance to the roots. One good watering at first is worth a surface dribble every day for a month, and very often when enough is given at first no more is wanted, which is a saving of labour as well as an advantage to the plants. Although it is not very often applied, a little manure water made from such fertilisers as guano is a capital thing occasionally to bring plants on in a bad season, and in the case of foliage plants it fetches up the colours, as it does with many bright-coloured flowers. Should any tender plants chance to be out in very cold weather or in a white-frosty morning a few small Spruce branches placed in here and there protect them a great deal, but not so much as old tiffany, which we have often used to lay over plants in beds with satisfactory results. Where there are only a few small beds old newspapers when thrown over them protect the plants wonderfully, but a stake must be pushed down through them here and there to prevent them being blown away.

In situations where plants are much exposed to wind it is a good plan to stake and tie them as they are planted, as nothing prevents plants from growing more than shaking the root. Keeping the beds quite free from weeds and hoeing frequently amongst the plants will do much to bring them on and recompense for backward influences.—M. M.

POSTPONEMENT OF ROSE SHOWS.—I cannot but regret that both the Royal Horticultural Society and Norwich Society have postponed their Shows. I have never known postponements to answer, and I fear these will interfere with other shows now, whereas they were quite clear of them. Personally I shall be deprived of the pleasure of being at Norwich, for I am engaged elsewhere on the 9th of July. True Roses were very backward a fortnight ago; but may it not reasonably be presumed that after having had such a spell of cold weather as we have had that things will go on without a check? We have not experienced the cold wave which has generally come about the 20th, and anyone who has seen the growth that Roses have made during the last week may hope that five weeks will bring them in well for the 28th of June. It is their proper season, and we generally find that in some way or other they come in, as witness last year. I may be wrong, but time will show.—D., *Deal.*

KITCHEN GARDEN NOTES.

CARTER'S MODEL CUCUMBER.—This promises to be an excellent Cucumber. Last year, when we cultivated upwards of a dozen different varieties, we thought Marquis of Lorne the most handsome of them all; but Carter's Model far surpasses it in this respect, or any other variety we know. The fruit is thoroughly in accordance with the description of it given in Carter's "Vade Mecum," being "perfect in outline, with scarcely any neck, and of fine flavour." It does not come into bearing so soon as our standard sort Telegraph, but the fruit is much longer, of a very dark green colour, and carries a beautiful bloom. I recommend all who wish to grow a handsome Cucumber to have this variety, and for exhibition purposes none will surpass it. While referring to Cucumbers let me say from experience that I consider Tender-and-True, which has been lauded so much in various quarters, not at all a serviceable Cucumber for everyday use.

EARLY TOMATOES.—This year we are growing about a dozen varieties of Tomatoes. Jackson's Favourite and Golden Trophy promise to be the largest in fruit; next come Acme, Hathaway's Excelsior, and Large Red; then Vick's Criterion and Carter's Green Gage; but for ripening early Little Gem comes first, and Burghley Perpetual soon after. Both are small-fruiting varieties, but most prolific; and all who wish either to have Tomatoes early or a long succession of them should grow these two in quantity. It is too early yet to state the merits of all our varieties, but it is not yet too late to sow and plant, therefore this reference may be of use to some of your readers.

EARLY PARSLEY.—As green vegetables were being cut up so much in the month of January we thought perhaps our Parsley supply might be cut short too during late spring, and to try and fill up any gap which might occur a quantity of seed was sown in a cutting box early in February. After being placed in a pit with a temperature of about 60° the seed soon germinated, and early in March the young plants were large enough to handle. They were then lifted and planted about 3 inches apart in ordinary cutting boxes filled with good loam and cow dung. They were again returned to their heated quarters, when they quickly started into growth, and at the present time we have plenty of Parsley in these boxes ready for use. This I consider a quick way of getting up a stock of this most useful culinary requisite, and one which might be adopted in many instances, not only in places where the supply may have been accidentally curtailed, but also in the numerous places where Parsley refuses to grow in the ordinary kitchen garden soil. In future we shall always have about a dozen boxes filled with it in autumn, and should the winter prove disastrous a plenteous supply of Parsley will be secured.

LATE PEAS.—Very much depends on the weather in early and late autumn for late Peas being good or bad, but as a rule a large sowing made in a favourable well-exposed position about the first day of June will be of more service and last as late as those sown about the middle of June. In cold districts too much dependance must not be placed on Peas sown very late. Late Peas should always be sown thinly, say 2 inches at least between each two seeds, as then they grow strong and hardy, and have a much better chance of filling their pods than when matted together. Ne Plus Ultra, British Queen, Laxton's Omega, and Culverwell's Prolific Marrow are all good late Peas.

GLOBE ARTICHOKES.—Although it is recommended by many we never protect our Globe Artichokes in winter. Why I can hardly tell. Perhaps we have not got into the "habit" of it. During last winter every leaf was frozen off them, the very crown being hardly visible. "Dead sure enough," many would have said; but their leaves are now close upon 2 feet high, many showing signs of forming heads, and all looking first-rate—as well, I am sure, as if they had been coddled in winter.

AUTUMN-PLANTED CABBAGES.—I think few will have grounds for contradicting me when I say never more autumn-planted Cabbages "bolted" than have done this spring. Last November we had a large width of them, in patches of various ages; every one of the largest, which would have come in at Easter, bolted before that time, and so did the next lot, the only Cabbages turning in now for Whitsuntide being from

seed sown very late. I do not think anything will prevent Cabbages bolting if the weather is conducive to it. In having a lot of plants of different ages some are sure to come in right.

TRAINING RASPBERRIES TO WIRES.—Under certain circumstances wire might probably injure Raspberry canes, but it does not do it with us. We have about 100 yards tied to wires, and as many more tied to wood rails, and the one lot does just as well as the other; all thriving satisfactorily. —A KITCHEN GARDENER.

CALANTHE CULTURE.

AMONGST terrestrial Orchids the species of Calanthe are unrivalled for winter flowering, for bouquets, ladies' hair, or buttonholes, and for the embellishment of plant houses. They deserve to be extensively grown where any attempt is made to supply winter flowers. A few species are evergreen and throw up their flower spikes during the summer; while others, as Calanthe Veitchii, C. vestita rubro-oculata, C. vestita luteo-oculata, C. vestita nivalis, and C. vestita Turneri, produce their flowers in winter. They can be had in bloom during several months, providing the pseudobulbs are started into growth at different times. The winter-flowering plants are deciduous and produce their flowers from the base of the bulbs when the foliage begins to decay. This is considered by some to detract from the beauty of the plants, but the delicate and graceful flower spikes so freely produced more than compensate for the defect, and, indeed, we consider them most accommodating, as they can be so well associated with Ferns and other plants.

The earliest plants will now be growing rapidly, while the remaining portion of the stock will be ready for potting, which should be attended to at once. In potting employ a compost of rich fibry loam, a little cow dung in a dry state, or leaf soil, with a small portion of charcoal and sand. The pots should be well drained, and not filled above the rims with the compost. Potting is best deferred until the young growths are 2 inches or more in length and commence producing roots at the base of the growths. The bulbs are secured on the surface of the soil, and the new roots soon enter the compost. Water should be applied carefully until the roots are active, after which the plants must never be allowed to suffer through deficiency of water, as they enjoy liberal applications and are much invigorated by liquid manure whilst growing. Calanthes should have plenty of heat after commencing growth, and be placed as near to the glass as possible. The plants should be shaded from strong sun, at the same time they must have all the light they can endure with free ventilation on all favourable occasions. The size of the spikes of flower does not entirely depend upon the size of the bulb, but upon the treatment they receive. If large bulbs are produced under the influence of light, air, and warmth, they will not fail to produce good spikes of flower, two and in some cases three spikes from each new pseudobulb.

As far as our experience is concerned Calanthes do not require very large pots, one strong plant in a 5-inch pot, or two smaller in a 6-inch pot, being suitable, without they are required for exhibition purposes. We have invariably found, when several are grown in one pot, the central plants do not produce such large spikes of bloom as those placed near the side of the pot, thus showing that light and air are two principal elements in producing large spikes of flower. We grow our plants in pots of the sizes named, and the majority of strong bulbs each produce two flowering bulbs and in some cases a small one from the top of the old bulb, each pot having four and five spikes of flower.

The Calanthe continues in beauty for a considerable time if not kept in an atmosphere that is too hot or moist while they are flowering. The bulbs require a good season of rest after blooming, withholding water until they again show signs of growth. The evergreen species do not require a long rest. Brown scale and green fly are troublesome to these plants while growing, and must be destroyed as soon as they appear. WILLIAM BARDNEY.

FUMIGATING.

YOUR editorial remark on page 304 was correct, or I would have contradicted it. Mr. J. Williams on page 341 says he has used the flower pot, and he is right in his remark that when too hot it may break; but if he puts a piece of copper wire round the rim and twists both ends tight, then turn them over inside the pot, he may work for years, as I have done, with one pot; and if my instructions are followed there is no fear of flame or need of damp moss if the paper be a little damp as I use it. Half a pound of good tobacco paper in an 8-inch pot is sufficient for a house 20 feet by 14, air-tight; and if I had large houses I should adopt the same plan by having fireclay vessels made to suit. The only mistake likely to be made is by pressing the paper too firmly in the pot, thus preventing air passing freely to draw the flame upwards. After one or two trials anyone will manage it, and be thankful he can do without live coal or hot cinders in any form.—W. R. F., *Amateur, Otley.*

ROYAL HORTICULTURAL SOCIETY.

GREAT SUMMER SHOW, MAY 27TH, 28TH, 29TH, AND 30TH.

YEAR by year as the great annual exhibitions of the Society come round, they reveal at once the magnitude of the resources of our chief nurserymen, the excellency of culture as displayed by British gardeners, and the sympathy that both nurserymen and amateurs have with the Society, which is the acknowledged head of practical and scientific horticulture in this country. When we take a retrospective glance at the exhibitions of five or six years ago, and contrast them with what they are now, we cannot but be astonished at the progress that has been made both as regards the magnitude and quality of the shows. This implies, if it implies anything, that confidence exists between the representative cultivators on the one hand and the officials of the Society on the other. It is understood and admitted that the objects of both are identical—namely, that horticulture in every branch shall be maintained in the highest possible state of efficiency, that an important industry shall be supported, and that the wholesome influences resulting from the culture of plants and flowers shall be as widely as possible extended; also that the essentially useful branch of the science—the cultivation of fruit and vegetables, shall have a meed of encouragement. To this end all the efforts are directed, and when those efforts are exemplified in such exhibitions as the one under notice we are not surprised that the influence and importance of the Society and its work are increasing in public estimation. It is because of the unity of effort that is now being made, the oneness of purpose that exists in such a marked manner, together with the intrinsic value of the objects sought to be attained, that the exhibitions now command such a large share of recognition, and meet with that patronage which is so powerful in giving an impetus to everything to which it is vouchsafed, and so readily extended to all that is worthy—the patronage of the Royal Family of England. To the countenance it has received from the various members of the Royal Family the Society owes much, and by no representative body in the State is that countenance more warmly appreciated than that which represents the large and loyal body of horticulturists.

The Royal party arrived shortly before twelve. Her Royal Highness the Princess of Wales was accompanied by the young Princess Victoria of Wales, the Crown Prince of Denmark, and the Crown Prince of Sweden. The other Royal visitors—the Duke and Duchess of Edinburgh and suite—came later, the Duke of Teck walking through the Show at about three o'clock. Their Royal Highnesses were received at the entrance by Lord Aberdare, President of the Society; Lord Alfred Churchill, Vice-President; Dr. Robert Hogg, Secretary; and other members of the Council. A bouquet of Rose buds from Messrs. Paul & Sons' Cheshunt rosery was presented to the Princess of Wales on her leaving the Gardens. The collections were closely examined and greatly admired by the Royal visitors.

In the arrangement of the schedule we observe some alterations from the programme of last year. There is an increase in the number of classes, an increase also in some of the prizes, with a corresponding reduction in others—notably in the Pelargonium classes—these plants having a show of their own pending. In the classes for Roses there is a substantial increase in the value of the prizes, an increase also in the Orchid classes. The miscellaneous collections of plants have this year received a considerable accession of encouragement, and new groups are included of Rhododendrons, Gloxinias, and Tuberous Begonias, all of which families are especially worthy of acknowledgment. There is a slight decrease in the amount allocated to specimen plants, and Tree Ferns and large Palms are omitted from the schedule. Last year hardy plants were omitted, this year substantial prizes are provided for them, also for certain cut flowers which were not included in the prize list of 1878. There is a decided increase in the fruit classes, although prizes are not provided for a "collection," only two competitors entering the lists last year in the class indicated; but the classes for Pine Apples, Grapes, Strawberries, and Cherries are increased, and there is a class for Tomatoes which were left out in the cold last year. Vegetables remain the same as before, except that Messrs. Sutton & Sons offer special prizes. So much for the schedule, which appears to have

been arranged with much thought and care and is well abreast of the times. Let us now look at the response. We say emphatically that it is a splendid one. The collections are arranged in two marquees, one 500 feet in length commencing at the entrance to the gardens from the Council-room and extending to the large tent. The long tent referred to contains the Rhododendrons, stove and greenhouse plants, large Azaleas, Orchids, hardy herbaceous plants, Tuberous Begonias, fruit, and vegetables, the majority of the exhibits being of superior quality and some of them splendid.

The principal marquee presents a magnificent appearance. We have seen it as full before, but never so rich in flowering plants. In the furnishing of the Exhibition ornamental-foliaged plants have usually predominated at past shows, but this year flowers—sweet bright flowers—are far in the ascendant; and the chief of these flowers are Roses. Taking the centre of the Show as the standpoint, which is a circular plot of lawn (over which in the evening was placed the electric light), Roses are all around us. At one end is Mr. Turner's magnificent nine, his twenty fresh and beautiful specimens being arranged in the side border of the tent. Opposite to the Slough giants and occupying two beds near the other end of the enclosure is Mr. George Paul's grand contribution; his nine specimens being noble examples of culture, and the twenty facing them also being of immense size, fresh and fine. In one of the principal side beds is a group of great extent and richness, composed of well-grown moderate-sized examples of Clematises from Messrs. Jackman and Son, and for which a gold medal was worthily awarded. The fine contrasting colours of these plants with the surrounding Roses has a most telling effect. Facing the Clematises is a superb and extensive group, not for competition, arranged by Messrs. Veitch & Son. The bulk of this collection is composed of Roses in 8-inch pots—dwarf plants admirably grown and flowered, and remarkably fresh, interspersed with elegant examples of the Japanese cut-leaved Maples not quite so high as the Roses, the effect being singularly beautiful. A hint might be taken here of the suitability of these Maples for mixing with and relieving dense masses of flowers, such as large Roses, Azaleas, and plants of that type, which often require a foil to display them to the best advantage. The end of Messrs. Veitch's group is occupied with choice plants, enumerated below, from the rich stores at Chelsea. At the extreme end of the marquee is Mr. Wills's splendid arrangement in Class 16. The sides of the tent are decorated with Azaleas, more Roses, collections of flowers and foliage plants, and new plants in competition for Mr. Bull's cups, the corners of the enclosure being filled with Ferns. Such is an outline of the appearance of this grand floral spectacle. We will now refer to the classes, commencing with the

Roses.—These, as before observed, constitute the grand feature of the Show. In the nurserymen's class for nine plants Mr. C. Turner has the premier position. The central plant is a magnificent example of Charles Lawson 7 feet high and through, perfectly furnished, and containing three hundred large fresh blooms. Adjoining is a specimen with nearly or quite as many flowers of Céline Forestier, and fronting this again is a noble pyramid of Duke of Edinburgh in magnificent colour. The front central plant is Madame de St. Joseph, a model of high culture and chaste beauty, bearing two to three hundred charming flowers just in the best condition. Its near neighbour—viz., Edouard Morren, is a sturdy vigorous specimen with remarkable flowers. La France is charming in foliage and blooms, and rich is Madame Victor Verdier. The remaining Roses in this wonderful group are Madame Thérèse Levet and Victor Verdier, the latter being large, fresh, and fine. Mr. G. Paul is an excellent second with plants of enormous size and superior condition, the best we remember having seen from Cheshunt, and that is saying a great deal. The central plant is a wonderful example of Céline Forestier, but about one day too old. The others are John Hopper and Princess Mary of Cambridge, both immense specimens; Madame Victor Verdier, extremely rich; Edouard Morren; Charles Lawson, a grand plant; Juno, Anna Alexieff, and a most meritorious specimen of Dr. Andry. Mr. Paul also exhibits plants not for competition, and excellent boxes of cut Roses, and receives a silver Flora medal.

In the open class for twenty Roses Mr. Paul turns the tables on his great rival, completely overpowering him by the weight of the specimens. The plants are nearly as large as those in the preceding class and of excellent quality, notably President, Miss Ingram, Marquise de Castellane, Horace Vernet, Charles Lawson, Madame Victor Verdier, and Edouard Morren. Mr. Turner's second-prize collection is composed of smaller plants but of undeniable excellence. A few giants were arranged at the back, but the plants having the finest blooms are those in 10-inch pots. These specimens are not more than 18 inches high and 2 to 3 feet in diameter, and are grand in blooms and foliage. Madame Lacharme, Madame Victor Verdier, Marquise de Castellane, Marie Baumann, Oxonian, Beauty of Waltham, Princess Beatrice, Camille Bernardin, and Villaret de Joyeuse are laden with blooms of exhibition quality—a most meritorious group. The third prize for twenty Roses was adjudged to Messrs. J. Lane & Son, Great Berkhampstead, for dwarf, healthy, well-bloomed specimens in 10-inch pots. They also exhibit a collection for which a silver Flora medal is awarded. Mr. Turner also exhibits a large miscellaneous collection of Roses.

In the amateurs' class for six Roses there are three competitors, Mr. Moorman, gardener to Miss Christy, Coombe Bank, Kingston-on-Thames, being far ahead of his rivals with dwarf well-bloomed specimens 3 feet in diameter of Paul Perras, Edouard Morren, Marquise de Castellane, Charles Lawson, Paul Verdier, and Centifolia Rosea—a most meritorious group. The second prize was awarded to Mr. J. Tranter, Upper Assenden, Henley-on-Thames, whose collection includes some Teas and a good plant of Madame Lacharme; the third-prize collection of Mr. James, gardener to W. F. Watson, Esq., Redlees, consists of dwarf and sturdy plants, but one or two of them rather weak.

Orchids.—In the open class for fifteen distinct species or varieties Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was most justly awarded the first prize of £20 for a superb group, including a magnificent specimen of Dendrobium nobile, over 4 feet through and 3 feet high, most profusely flowering. Dendrobium thyrsiflorum has five good spikes; the pretty white Calanthe veratrifolia also has five. Cypripedium villosum, a grand plant in perfect health, has twenty-one blooms. The beautiful Cypripedium spectabile is also very attractive, and Cattleya Warneri has seven enormous flowers; Masdevallias Harryana and Veitchiana are also good. Mr. H. James, Castle Nursery, Lower Norwood, secured the second prize with a deserving collection, evincing careful and good culture. Dendrobium nobile is again fine, also D. Wardianum, Cattleya Mossiæ bearing fourteen large flowers; Lælia purpurata, very highly coloured and healthy; Oncidium crispum grandiflorum has five large branching spikes of bright brown flowers; O. Marshallianum has a fine branching spike of large yellow flowers. Messrs. Jackson & Son are third with plants of average merit, somewhat small but healthy, Cypripedium barbatum, Dendrobiums thyrsiflorum and Devonianum being the best.

In the amateurs' class for ten distinct plants Mr. Child was awarded the first prize for good specimens of Vanda suavis; Dendrobium nobile, very profusely flowered; Saccolabium retusum, with two fine spikes; Odontoglossum citrosmum, with six spikes; Lælia purpurata pallida, with eleven fine flowers; Cypripedium pubescens, with three of its yellow blooms; and Aërides odoratum purpurascens. Mr. Douglas being second with fair plants, Masdevallia Harryana Whitbourniana being extremely rich; Cattleya Mossiæ and Odontoglossum Andersonianum also fine.

In the corresponding nurserymen's class Mr. B. S. Williams, Upper Holloway, is first with extremely fine specimens. Cypripedium Swannianum, with over twenty large blooms, is a magnificent plant; Odontoglossum Pescatorei has eight good spikes; Lælia purpurata having twenty-six bright and beautiful flowers; Cattleya Mossiæ has over twenty most delicately tinted blooms; Odontoglossum vexillarium is also in good condition; Dendrobium thyrsiflorum, six spikes; and Masdevallia Lindeni, with over forty brightly coloured flowers. Mr. H. James was placed second with an inferior collection, including Cypripedium barbatum, Cattleya Mendelii, and Phalænopsis Lüddemanniana in fair condition. For a group of Odontoglossums Mr. Bull staged a charming collection, and was worthily awarded the first prize—O. vexillarium, in three or four distinct varieties, is very beautiful, as also are the varieties of O. Alexandræ, O. Halli, O. citrosmum roseum, O. Roezlii, and O. cordatum, the whole being interspersed with Gauze Ferns (Adiantum gracillimum). Mr. Bull also exhibits Dendrobium suavissimum, very bright; D. superbiens and D. Marshallianum; Spiræa nivosa in this group is also very pretty, and very gay is the new Coleus Harlequin.

Stove and Greenhouse Plants.—In the open class for twelve stove and greenhouse plants Messrs. Jackson & Sons, Kingston, gained the first prize with a group of medium-sized but good plants, including Boronia serrulata, Chorozema Lowii, Azalea Duc de Nassau, A. Stella; Pimelea Hendersoni, freely flowered; Dracophyllum gracile, Anthurium Schertzerianum with three dozen spathes; Erica depressa, freely flowered and healthy but somewhat irregular in shape; Aphelexis macrantha rosea and purpurea, well trained and flowered; Clerodendron Balfourianum, very good specimen of moderate size; and Hedaroma fuchsioides. Messrs. J. Peed & Sons, Roupell Park Nurseries, Lower Norwood, exhibit a good collection of plants, including one remarkable specimen of Dracophyllum gracile over 4 feet in diameter and well flowered. A medium-sized Boronia pinnata is flowering freely; a small plant of Polygala Dalmaisiana is also fair. Several Azaleas are well grown. The other specimens do not call for special notice. The second prize was awarded.

In the nurserymen's class for eight plants Messrs. Jackson and Sons were first with a collection of excellent plants, including Imantophyllum miniatum, 4 to 5 feet through, with fine flowers and trusses; Boronia pinnata, very good; Aphelexis macrantha purpurea and rosea; Hedaroma tulipifera in extremely fine condition; Erica florida most profusely flowered. Messrs. J. Peed and Sons follow with a collection of meritorious plants, in which Tetratheca ericoides is remarkably well trained and freely

flowered. A moderate-sized plant of Erica Cavendishiana is deserving of notice for the great size and good colour of the flowers. Epacris Eclipse is good, also Erica profusa, the latter being extremely bright. In the corresponding class for amateurs Mr. James Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, produces a highly meritorious collection of healthy specimens. Azaleas Magnet and Iveryana are most profusely flowered, the individual blooms being extremely large; Erica depressa also healthy and floriferous. Anthurium Schertzerianum has over forty rather small spathes but brightly coloured, and a small plant of Clerodendron Balfourianum is very vigorous and good. He secured the first prize. Mr. J. Weston, gardener to D. Martineau, Esq., South Road, Clapham Park, exhibits a collection of average merit, Chorozema varia nana, Aphelexis macrantha purpurea, and Azalea Stella being the best, the latter bearing enormous flowers. The second prize was awarded.

In the open class for eight distinct Ericas there were only two collections. Messrs. Jackson & Son stage some fair specimens of the following:—Erica affinis, E. profusa, E. depressa, E. Victoria, E. Cavendishiana, E. mundula, and E. elegans, well grown, and bearing a moderate amount of flowers. The first prize was awarded. Messrs. B. Peed & Son, Norbury Nurseries, are second with a collection of plants of average size and quality, E. ventricosa magnifica bearing fine blooms, also E. tricolor Wilsoni, but somewhat loosely trained.

Azaleas.—In the nurserymen's class for nine plants Mr. C. Turner has the first place for large densely flowered informal bushes, most of the plants being on stems 2 to 3 feet high, the heads 3 to 4 feet in diameter. Comtesse de Flandres is a very beautiful rose with crimped petals, Duchesse de Nassau and Chelsoni are rich, Madame Cannaert d'Hamale delicate, and Cedo Nulli distinct by its purplish mauve colour. Messrs. Jackson & Son, Kingston, Surrey, are second with plants very irregular in size and of moderate quality. Mr. Wills has the third prize with thin pyramids 7 to 8 feet high. In the open class for fifteen plants in pots not exceeding 12 inches in diameter Mr. Ratty, gardener to R. Thornton, Esq., Sydenham Hill, secures the premier position with blunted cones 3 to 4 feet high and densely flowered. Extremely bright are Chelsoni, Mons. Thibaut, Juliana, and Stella. The finest of the pinks are Model and Mrs. Fry. Of the lighter colours Souvenir du Prince Albert is distinct and very beautiful, and highly attractive are Mdme. Ambroise Verschaffelt, Charles Enke, and Mdme. Cannaert d'Hamale; and a fine rosy purple is Crotteriana. Messrs. Ivery & Son, Dorking, are placed second with plants of the same character, but less densely bloomed. Rosy Morn in this group is a deep-glowing pink; Iveryana, very pure white and good; and La Superbe, a glowing scarlet suffused with crimson, very effective; Bride of Abydos is a fine creamy white flaked with rose. Messrs. Ivery also exhibit a large collection of smaller plants. Mr. C. Turner secures the third prize with smaller plants, including such beautiful varieties as Grandis, Eugène Mazel, Mons. Cuvellier, very bright scarlet; Reine des Fleurs, Alice, and Duc and Duchesse de Nassau. Souvenir du Prince Albert is also very fine in this collection. A silver Banksian medal was also awarded to Messrs. Ivery & Son for a collection of Azaleas.

In the amateurs' class for eight plants there were three entries. Mr. Child gained the premier award with very profusely flowered specimens, the individual flowers being also good. Duc de Nassau is remarkable, Concinnum good, Criterion a dense mass of blooms, Cedo Nulli and Duchesse de Nassau extremely bright in colour, Iveryana and Model also very beautiful; Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, being second with large specimens about 6 feet high and 5 through, but not so profusely flowered. Holfordiana, Model, and Georgiana are the best, remarkably healthy, although the flowers are somewhat scattered. Mr. Weston, gardener to D. Martineau, Esq., Clapham Road, was third.

Pelargoniums.—In the open class for nine show varieties there are two collections. Mr. J. James, gardener to F. Watson, Esq., Redlees, Isleworth, secured the first prize with excellent specimens of Prince of Denmark, over 3 feet in diameter, the flowers very good; Sultana, very richly coloured, fine flowers; Prince Leopold, very beautiful and brilliant, 3 feet 6 inches in diameter; Rob Roy, very regular and good; Prelate, good colour; Snowflake, fine blooms, but few. A pretty collection. Mr. Charles Turner is second with good specimens, bearing extremely fine flowers, but not so profusely as in the previous collection. Isabella has flowers 2½ inches across of good colour; Ruth, very pretty; Highland Lassie, remarkably bright; Claribel, a grand plant over 4 feet across, its white flowers having the two upper petals blotched with bright pink. Several other varieties are only in moderate condition as regards the number of flowers. In the open class for nine fancy varieties Mr. James again occupies the first position with a highly meritorious collection of plants, profusely flowered, healthy, and averaging 3 feet in diameter. East Lynn is especially noticeable, also Mrs. Graham, Lucy, Fanny Gair, Juliet, Princess Teck, and Madame Sainton Dolby, extremely well grown and flowered; Mr. Turner being second with good plants, but inferior to the last.

In the class for a group of not less than thirty Rhododendrons Messrs. H. Lane & Sons, Great Berkhampstead, the only exhibitors, were awarded the first prize for fine specimens, bearing large heads of good coloured flowers. The best varieties are Giganteum, bright pink with good truss; Fastuosum flore-pleno, pale purple, large heads; Mrs. J. Clutton, small heads of whitish pink flowers; Joseph Whitworth, very dark crimson; Mammoth, large heads, pink; Snowdon, medium-sized heads of pure white flowers; and Correggio, bright crimson flowers in neatly formed heads. The collection was very good in all respects.

Tuberous Begonias.—In the open class for not less than twenty plants in pots Messrs. John Laing & Co., Stanstead Park Nurseries, Forest Hill, were justly awarded the first prize for a superb collection, the best that has ever been exhibited, including the finest varieties in commerce. The most prominent are Trophy, a good scarlet; Massange de Louvrex, very brilliant; Madame Oscar Lamarche, with immense bright scarlet flowers; Comte de Hemptienne, with extremely rich and finely formed flowers; Maude Churchill, large pale yellow flowers; Sir Trevor Laurence, intensely bright scarlet; Savill's Yellow, small; J. H. Laing, very beautiful flowers; President, extremely bright; Rosy Box; Mrs. Col. Long, chrome yellow, distinct; Dr. Duke, fine form; Exposition de Sceaux, large and brilliant; Baronne Léon Lequay, delicate flesh pink; Charles Raes, large and pendulous flowers, and many others too numerous to particularise. Messrs. Hooper & Co., Covent Garden, secured the second prize, also for a good collection. It includes many of the varieties already named, and the following in addition:—Reine de Bougival, white; Pearcei, yellow; Julia, scarlet; Petrarque, scarlet; and Paul Masurel, scarlet. Messrs. Jackson were third with plants of average merit.

Gloxinias.—In the class for a collection of not less than thirty plants Mr. John Wills is first with a tasteful group, the plants being intermixed with Adiantums. The flowers are large, and the colours rich and varied, their general healthy vigorous appearance proving careful cultivation. Mr. W. Reeves, gardener to C. Hart, Esq., Beaufort House, Lee, secures the second prize with well-grown plants extremely healthy, the flowers being large and richly coloured. The most noticeable varieties are Agnes, Florence, Edith, Dr. Chittenden, Isabella, and Amy. A group from the Society's gardens at Chiswick is also very fine, including some extremely beautiful varieties.

New Plants.—In the open class for twelve plants introduced since 1876 Mr. W. Bull, King's Road, Chelsea, gained the first prize with very beautiful specimens of the following—Nephrolepis Duffii, fronds dark green, pinnate; pinnæ rounded, the apex of the fronds terminating in four to five divisions. Lomaria discolor bipinnatifida, a very elegant Fern with light green fronds about 2 feet long. Hæmanthus Kalbreyeri, with dense umbels of scarlet flowers and stamens, the divisions of the perianth being linear, spreading, and the stamens long. Dracæna Goldieana, a fine specimen, very distinct. Anthurium Veitchii, narrow dark green leaves, very good habit. Encephalartos Hildebrandi, elegant light green leaves. E. Fredérici-Gulielmi, with stiff, abrupt, pubescent leaves. Croton roseo-pictum, somewhat elliptical leaves, barred and veined with red and yellow. Dieffenbachia Shuttleworthi, with gracefully drooping acuminate leaves, marked with a whitish band down the centre. Dracæna Willsi, elegant recurved leaves, streaked with dark red. Bowenia spectabilis serrulata, dark green shining bipinnate leaves, gracefully drooping; and Thrinax barbadensis, a beautiful Fan-leaved Palm. Mr. John Wills, Onslow Crescent, secured the second prize with Croton Prince of Wales, a spiral-leaved variety; C. Queen Victoria, narrow acute leaves variegated with red and yellow; Dracæna anerleyensis, very dark elegant leaves; D. terminalis alba, streaked with white; D. majestica, fine recurved leaves streaked with light red; Nepenthes Courtii, with small pitchers; Pritchardia grandis, a magnificent Fan-leave Palm; Dieffenbachia Shuttleworthi; Ficus Grellii, leaves dar green and runcinate; and Acalypha mosaica, ovate acuminat leaves blotched with red. Mr. B. S. Williams being third with Dracæna Bausei, bright dark red recurved foliage; D. Goldieana; D. superba, very narrow red-streaked leaves; Croton Williamsi, leaves blotched and veined with red and yellow; C. Prince of Wales, a very fine specimen; Azalea Prime Minister, of the amœna type, very bright flowers; Azalea Mrs. Carmichael, a good crimson; Microlepia hirta cristata; and Adiantum Williamsi, very beautiful.

Mr. Bull's Prizes, offered for twelve new plants sent out by him since 1876.—In Class A for amateurs Mr. Rann was awarded the first prize for Croton princeps, C. picturatum, C. Hendersoni, C. Williamsi, Dieffenbachia illustris, Lomaria Dalgairnsiæ, Dracæna Rex, D. vivicans, D. Robinsoniana, D. Goldieana, and Kentia Wendlandiana, all well grown. Mr. Penfold, gardener to the Rev. Canon Bridges, Beddington, was placed second with Panax laciniatum, Croton Hendersoni, C. Disraeli, Gymnotheca Raddiana, Davidsonia pruriens, Pitcairnia platyphylla, Aralia filicifolia, Pteris umbrosa cristata, Chamædorea formosa, Dracæna vivicans, and D. Goldieana. Mr. J. Hammond, gardener to Sir Wilfrid Lawson, Brayton, being third with Aralia gracillima, Brahea filamentosa, Gymnogramma Mertensii dobrydensis, and Macrozamia Mackenzii in addition to the plants named in the preceding collections. In

Class B for nurserymen Mr. B. S. Williams obtained the first prize with Cibotium pruinatum, Dracæna Rex, D. Robinsoniana, D. Goldieana, Croton princeps, C. Williamsii, C. Disraeli, Kentia Wendlandii, Sadleria cyatheoides, Dieffenbachia Skuttleworthii, and Calyptronoma Swartzii, all in excellent condition. Mr. John Wills was a fair second with Davidsonia pruriens, Croton Disraeli, Dracæna Goldieana, Panax laciniatum, Anthurium Veitchii, Lomaria Dalgairnsiæ, and several of the species enumerated above. In Classes C and D there were no entries.

Fine-foliage Plants.—Mr. Warren is many points ahead of other competitors in this class with plants of great size and high culture. Areca sapida and Latania borbonica are two splendid specimens; Cycas revoluta is grand; very fine also are Croton multicolor, C. variegatum, and C. angustifolium, these plants brightening the group considerably. The remaining specimens are good examples of Zamia Lehmanni and Dasylirion glaucum. Mr. Penfold, gardener to Rev. Canon Bridges, Beddington House, Beddington, is an excellent second, the plants being very healthy and fine, especially Dracæna indivisa linearia, Dieffenbachia Bausei, and Anthurium crystallinum, the fine leaves, however, of the latter plant being somewhat injured. Third honours go to Mr. J. Ford, gardener to J. G. Meegaw, Esq., Windermere House, Upper Norwood, for meritorious plants, Dieffenbachia Bowmanni being a grand specimen and the others good, especially Areca lutescens and Cycas revoluta. Four competitors entered the lists, Croton undulatum in Mr. Douglas's group being in splendid colour.

Ferns.—In the class for six stove and greenhouse Ferns Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, has the premier honour with a collection of very great merit. The back plants—Cibotium Schiedei has a spread of about 9 feet, and is remarkably dwarf and fresh; Gleichenia Mendelii, nearly 5 feet in diameter, is a model plant; and Dicksonia antarctica is very fresh. The front plants are Gleichenia microphylla, compact and good; Adiantum farleyense, nearly 3 feet across and remarkably healthy; and a large and well-furnished example of Todea (Leptopteris) superba, a splendid example of culture. The second prize was awarded to Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Sussex. Cyathea dealbata is very good, Gleichenia microphylla excellent, D. glaucescens is also very fine, and Davallia Mooreana fresh and good. The others call for no comment. Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, was awarded the third prize for irregular-sized but remarkably healthy specimens. Dicksonia antarctica in this collection is a fine plant and a distinct variety with grand drooping fronds. A few plants of the same variety may be seen in the Crystal Palace, and are quite distinct from the species. Davallia polyantha and Pteris scaberula are worthy of notice in this group. Four collections are staged in the class. In the nurserymen's class for six stove or greenhouse Ferns Mr. B. S. Williams is the only exhibitor, and was worthily adjudged the first prize for excellent specimens.

Hardy Plants.—In the class for a group Mr. R. Parker, Tooting, the only exhibitor, secured the first prize with a pretty collection, including Dianthus neglectus, Saxifraga Maweana, Pæonia tenuifolia flore-pleno, Spiræa japonica, Iris spectabilis, Euphorbia pilosa major, Primula japonica, Trollius asiaticus, Pæonia officinalis flore-pleno, Narcissus bulbocodium, Caltha palustris fl.-pl., Iris Sultan, Doronicum asiaticum, Orchis maculata superba with fifteen fine spikes; Saxifraga granulata, S. rotundifolia hirsuta, Thalictrum rubellum, Trollius americanus, Veronica gentianoides, and a basket of Iris nudicaulis, all very interesting. Messrs. Osborn of Fulham exhibit a beautiful collection, but not for competition. The most noticeable are Gentiana acaulis, G. verna, Cypripedium calceolus, Phlox subulata violacea, Cytisus præcox, Phlox divaricata, Narcissus bulbocodium, and Vinca nana punicea.

Groups.—These added greatly to the diversity and beauty of the Exhibition. In the class for a group of miscellaneous plants arranged for effect, and occupying space not exceeding 300 square feet, Mr. Wills occupies the extreme end of the marquee with a magnificent arrangement. Lofty Palms reaching to the canvas overhang smaller yet not small Ferns, and such ornamental foliaged plants as Dracænas. At the base of these are grouped Calceolarias, Spiræas, and Pelargoniums. Towards the front the group is carpeted with Selaginellas, in which are dotted large Anthuriums, Phyllotænium Lindeni, Yucca filamentosa variegata, Caladiums, Gloxinias, and Orchids—a group of great richness, elegance, and beauty, which was worthily awarded the first prize. Messrs. J. Laing & Co., The Nurseries, Forest Hill, London, receive the second prize for a collection of great excellence, both the flowering and foliaged plants being in superior condition, and the whole arranged with great taste. Tuberous Begonias, Gloxinias, Heaths, Primula amœna, and Azaleas are very bright in this collection. Mr. Aldous, Gloucester Road, South Kensington, arranged a group both chaste and novel. It is composed almost wholly of white-flowered plants, Stocks, Spiræas, &c., interspersed with Ferns, and was placed equal third with Messrs. Peed & Sons, Roupell Park, Nurseries, Norwood, who arranged a rather crowded yet good collection. For a group of miscellaneous plants in bloom Mr. B. S. Williams nobly won the first position with a very large, rich, and varied arrangement. Magnolia Soulangeana, Azaleas, Boronias, Aphelexis, Ixoras, Heaths, Pelargoniums, Franciscæas, Anthuriums, Rhododendrons, Genetyllises, Dendrobiums, Polygalas, and Gloxinias tastefully arranged, were included in the extremely cheerful group.

For a group of fine-foliaged plants Mr. Rann was awarded the first prize for a collection of undeniable merit, the plants being large and in superior condition. They are chiefly fine-foliaged plants, and being well arranged produce a very rich effect. Messrs. Hooper & Co. were placed second with an elegant group of specimens. The centre is occupied by Palms, and filled up with Crotons, Maranta zebrina, and Caladiums, edged with Selaginella and Caladium argyrites.

Mr. Boller exhibited a group of succulent plants in great variety, and was awarded a silver Banksian medal.

From the Society's garden at Chiswick came a group of Primula japonica and Iberis gibraltarica; a group of sixty small Azaleas very profusely flowered, including some excellent varieties—viz., Duc de Nassau, Souvenir de Léon Maennaut, Marie Lefebvre, Vander Crussen, and Sigismund Rucker; a group of Tuberous Begonias in pots, and six plants of Rolliesson's Unique Pelargonium. All in excellent condition.

Several collections of great merit are arranged not for competition. Messrs. Veitch's extensive contribution is alluded to above, and besides the Roses there noticed we observed the following plants, which constitute a bank of remarkable beauty:—The central plant on the highest part of the sloping bank is a grand specimen of Anthurium Schertzerianum, with over forty fine spathes; a graceful specimen of Microlepia hirta cristata is immediately below, the bulk of the group being composed of Orchids and new flowering and foliage plants. We may especially note the following:—Boronia elatior, rich dark pink pendulous flowers; Adiantum speciosum, large bipinnate fronds, the pinnules deeply crenated; A. Liddemannianum, peculiar roundish-curled pinnules; Saccolabium guttatum, with six fine spikes; Rhododendron Duchess of Teck, cinnamon yellow, fine truss; Oncidium concolor, Aërides Veitchii, A. Fieldingi, Azalea indica Le Flambeau, Hæmanthus cinnabarinus, Aralia Veitchii, the peculiar Iris iberica, the brilliant Gesnera macrantha, Asparagus plumosus, very graceful; Epidendrum syringæthyrsus, Dioscorea retusa, and a pan of carnivorous plants, including Drosera capensis, D. rotundifolia, Cephalotus follicularis, Desvaxia tenuior, Sarracenia psittacina, Darlingtonia californica, and Dionæa muscipula. Messrs. Veitch were awarded a gold Banksian medal for Roses and Maples, and a similar medal for new and rare plants.

Mr. B. S. Williams has a large and elegant group, principally composed of foliaged plants, such as Dracænas, Crotons, &c., intermixed with Ferns and Palms, also including a few Crotons and pans of the richly coloured Coleus Kentish Fire, Adiantum Williamsii, Bertolonia Van Houttei, and Sarracenia sanguinea. A silver Banksian medal was awarded.

Messrs. Cutbush & Son, Highgate, exhibit a group of considerable extent and merit composed principally of hardwooded flowering plants. Erica candidissima is very fine, also Bouvardia jasminoides and Tetratheca ericoides hirsuta. Interspersed are good Kentias, Yuccas, and Araucaria excelsa. A similar award was granted, and also to Messrs. Osborn & Sons, Fulham, for a corresponding group, chiefly consisting of healthy Palms, Dracænas, Crotons, Caladiums, &c., brightened with Anthurium Schertzerianum and Acacias; and Messrs. Dick Radclyffe exhibit a rockery embellished with Ferns with water trickling from the rocks into the pool below—a highly artistic arrangement.

Cut Flowers.—In the class for a group of hardy flowers in separate bunches Mr. R. Parker was placed first with Trollius americanus, Genista purgans, Rhododendron guttatum pictum, Iris sulphureoens, Iris Sultan, Malus floribunda, Magnolia hybrida Lennei, Ulex europæa flore-pleno, Aponogeton distachyon, and Genista præcox, all very beautiful and fresh. Messrs. Hooper & Co. are second also with a very pretty collection, including many of the species and varieties noted in the last exhibit. In the class for cut Pansies Mr. H. Hooper, Vine Nursery, Bath, is first with a collection of immense blooms, very richly coloured and of good form; Mr. H. Catley, 16, Claverton Buildings, Bath, being second, also with remarkably large and well-coloured blooms. Mr. A. Parmley, Park Side, S.W., exhibits three elegant bridal and ball bouquets. Mr. Aldous, florist, Gloucester Road, also exhibits some gracefully decorated vases.

Messrs. Wm. Paul, Waltham Cross, exhibit boxes of cut Roses, including the following excellent varieties:—Madame Falcot, Star of Waltham, Maréchal Niel, Baronne de Rothschild, Niphetos, Xavier Olibo, Camille Bernardin, Madame Margottin, Marie Baumann, Victor Verdier, and Souvenir d'un Ami in fine condition.

FRUIT.

Taking into consideration the extremely dull, cold, and unpropitious spring, a very fine or extensive display of fruit could scarcely be expected. The class for Black Hamburgh Grapes is the best in this section of the Show, some of the examples being very good indeed, as also are the Strawberries and Melons. The white Grapes are very green and unripe. A row of well-fruited plants of the Vicomtesse Hericart de Thury Strawberry from the Society's Chiswick gardens, arranged at the back of the fruit and vege-

tables, helped to make that corner of a very fine show highly attractive.

PINE APPLES.—In the open class for two fruits there are two entries. No first prize was awarded. Mr. Rutland, gardener to His Grace the Duke of Richmond and Gordon, secures the second for a fair fruit of Charlotte Rothschild and a small Queen; and Mr. J. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, is third for two small Queens. For one Queen Pine there are also two entries. Mr. Rutland gained the first prize with a moderate-sized fruit, and Mr. Child the third for a smaller example. In the class for one Smooth Cayenne there is only one entry. Mr. G. T. Miles, gardener to Lord Carington, Wycombe Abbey, stages good fruit, and was awarded the first prize; and Mr. Rutland is the only exhibitor in the class for any other variety, staging a moderate-sized but perfectly ripened Charlotte Rothschild which merits the first prize awarded.

GRAPES.—The class for three bunches of Black Hamburghs is an excellent one, there being nine entries. The first-prize bunches staged by Mr. P. Edwards, gardener to Mrs. Tristram, Fowley, Liphook, are rather loose, but in other respects are very good. Those staged by Mr. Johnstone, gardener to the Marchioness of Camden, and which gained the second prize, are extremely well coloured, but the bunches are very loose, and in marked contrast to the third-prize lot staged by Mr. Bones, gardener to D. McIntosh, Esq., Havering Park, Romford, which are very compact and good, colour only being a little deficient. There was no competition in the class for any other variety of Black Grapes. One stand only of Muscat of Alexandria is staged, which came from Mr. J. Maher, gardener to C. Allhusen, Esq., Stoke Court, Slough, which were awarded the first prize, although far from being ripe. For three bunches of any other variety of White Grapes there are two entries. Mr. J. Atkins, gardener to Col. Lloyd Lindsay, Lockinge Park, Wantage, is first with Buckland Sweetwater, and Mr. P. Edwards second with the same variety, both staging good-sized bunches, the berries also large but somewhat green. Three bunches of Foster's Seedling sent by Mr. Bannerman, gardener to Lord Bagot, Blythfield, Rugeley, which should have been staged in this class, but were unfortunately wrongly entered, or otherwise would certainly have been placed first.

PEACHES AND NECTARINES.—Only one dish of Peaches is staged, which came from Mr. J. Maher and gained the first prize, the variety being Stirling Castle. There are two dishes of Nectarines. The first prize being gained by Mr. Maher with highly coloured and good-sized fruit of Hunt's Tawny, and the second by Mr. J. Nash, gardener to Dr. Fuller, New Shoreham, Sussex, for a good well-coloured dish of Violette Hâtive.

Mr. G. T. Miles is the only exhibitor in the classes for Cherries, gaining the first prize in the class for two dishes with fine dishes of Black Circassian and Elton, and in the single dish class with Black Circassian.

STRAWBERRIES.—Two collections are staged in the class for three dishes distinct. Mr. G. Norman, gardener to the Marquis of Salisbury, Hatfield Park, being first with splendid highly-coloured dishes of Sir C. Napier, Sir J. Paxton, and President; the second position being secured by Mr. A. J. Bridgman, gardener to T. Somers Cocks, Esq., Thames Bank, Marlow, for excellent dishes of Myatt's Eleanor, Sir C. Napier, and President. In the single dish class there are five entries. Messrs. Barnwell & Tilbury, The Graperies, Worthing, are first with a very fine dish of Vicomtesse Hericart de Thury; Mr. G. Norman second with a fine dish of Sir J. Paxton; and Mr. Rutland third with a good dish of Sir C. Napier.

MELONS.—In the class for one Melon there are nine entries, Mr. C. Deaven, gardener to the Hon. C. R. D. Hay, Harwood Lodge, Sunning Hill, Staines, securing the first position with Windsor Gem, a scarlet-fleshed variety of fine size and flavour and beautifully netted. Mr. J. Chilton, gardener to T. Taylor, Esq., Aston Rowant House, Tetsworth, Oxon, is second with a good fruit of Queen Emma; and Mr. G. Goldsmith, Hollanden, Tonbridge, third with Read's Hybrid. This class is very good.

TOMATOES.—Mr. W. Igguldon, gardener to R. B. Wingfield Baker, Esq., Orsett Hall Romford, is first with a splendid dish of Improved Trophy; Mr. G. T. Miles second with Stamfordian, very good, and Mr. Rutland third.

VEGETABLES.

Several entries were made, but two collections of vegetables only were staged. Mr. G. T. Miles is first with a generally good collection, consisting of Stamfordian Tomatoes, Canadian Wonder Beans, Tender-and-True Cucumbers, The Queen Onions, Nantes Horn Carrots, Unique Peas, Cattell's Eclipse Broccoli, Mushrooms, Asparagus, and Veitch's Ashleaf Potatoes. Mr. W. Igguldon is a close second, his best dishes being Trophy Improved Tomatoes, Col. Taylor's Montrose Cucumber, Carter's Advancer Beans, Veitch's Ashleaf Potatoes, and Vegetable Marrows. A hundred dishes of Radishes came from the trial grounds at Chiswick.

MESSRS. SUTTON & SONS' PRIZES.—In the class for collections of Melons and Cucumbers two excellent collections are staged, the best being from Mr. T. Lockie, gardener to Lord O. Fitzgerald, Oakley Court, Windsor. The Cucumbers are Kirklees Hall Defiance, Duke of Connaught, and Marquis of Lorne; the Melons being The Squire, the Earl of Beaconsfield, and Oakley Hybrid. Mr. Atkins is a good second; his fruit, however, of the Earl of Beaconsfield being unripe, the other Melons staged by him are both his own seedlings, one of them—Lockinge Hybrid, being very fine and beautifully netted—a variety of considerable promise.

FRUIT AND FLORAL COMMITTEES.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. Divers, Wierton Place, Maidstone, exhibited four plates of Apples in fair condition; Northern Greening, Gooseberry Apple, and French Royal being good. Mr. Russell, gardener to J. W. Wilson, Esq., Oatlands Park, Weybridge, sent a seedling Melon, a cross between Cox's Golden Gem and Reid's Scarlet, but it was not considered sufficiently distinct to merit a certificate. Mr. Killick of Maidstone sent a collection of Apples in superior condition, every dish being sound and in good colour.

FLORAL COMMITTEE.—Dr. Denny in the chair. Messrs. Veitch exhibited several plants, of which the following were certificated: Croton Evansianum, with pretty three-lobed leaves, elegantly marked with red streaks and veins; Gloxinia Duchess of Connaught, an extremely beautiful variety, with flowers of medium size, rich crimson scarlet in the throat and centres of the lobes, the margins of the latter being pure white; for Azalea mollis Arthur de Warello, bearing compact globular heads of pale orange flowers. They also exhibited Magnolia Soulangeana and its variety nigra for contrasting. First-class certificates were awarded to Mr. R. Dean for Polyanthus superbus, very rich dark chocolate colour with a bright yellow eye, a beautiful plant; and for Primula sikhimensis, with pale sulphur-coloured somewhat pendulous flowers and elliptical leaves. Mr. Charles Turner was awarded a first-class certificate for an extremely fine semi-double white Azalea Madeline, a valuable variety on account of its floriferous habit and large blooms. A vote of thanks was accorded to Mr. Hodges, gardener to R. Wright, Esq., Gravelly Hill, Birmingham, for a superb flower of Lælia purpurata Wrightii; and to Messrs. Cripps & Son for some good Clematises. A basket of a fine double pale yellow Primrose Cloth of Gold, with flowers nearly 2 inches in diameter was exhibited by Messrs. Carter & Co., and Mr. Cannell had a vote of thanks for a box of Pelargoniums. Meconopsis nepalensis, from the Society's garden at Chiswick, was highly commended. First-class certificates were awarded to Mr. Elwes, Cirencester, for Fritillaria recurva and Cypripedium pubescens major. Mr. Speed, gardener to the Duke of Devonshire, Chatsworth, was awarded a second-class certificate for Amaryllis Lady Louisa Egerton, a good flower with the recurved perianth divisions streaked in the centre with crimson.

HORTICULTURAL STRUCTURES, IMPLEMENTS, GARDEN APPLIANCES, &c.

These are tolerably numerous. Amies' Chemical Manure Company, 79, Mark Lane, E.C., exhibit samples of Amies Manure. Blake & McKenzie, School Lane, Liverpool, a varied collection of garden requisites. J. H. Critchley, Grosvenor Works, Cheltenham, patent heat regulators, for which a silver Banksian medal was awarded. John Crowley & Co., Sheffield, "Invincible" mowing machines—Edward's patent—commended. Doulton & Co., Lambeth Pottery, terra cotta vases, &c. Mr. J. Caven Fox, Royal Horticultural Society, South Kensington, twelve rustic summer houses, &c. Messrs. Foster & Pearson, Horticultural Builders, Beeston, Notts, samples of patent slot throttle valve, awarded a silver Banksian medal and commended for simplicity. Thomas Green & Son, 54 and 55, Blackfriars Road, Green's patent lawn mowers and garden rollers, the merits of which are so well known as to require no comment. Joseph Davis, 90 and 92, Crampton Street, Newington Butts, collection of Royal Polytechnic barometers and scientific instruments. Mr. J. Matthews, Royal Pottery, Weston-super-Mare, terra cotta vases and flower pots, commended. Thomas McKenzie & Sons, 16, Holborn Viaduct, lawn mowers—the "President." The Panklibanon Furnishing Ironmongery Company (Mr. W. J. Turnbull, Manager), 56, Baker Street, Portman Square, rustic garden furniture, &c., a good display. Prentice Bros., Stowmarket, samples of their stimulating manure. Ransomes, Sims & Head, Orwell Works, Ipswich, reversible "Automaton," and horse-power lawn mowers. W. Richardson & Co., Horticultural Builders, Darlington, a greenhouse, glass wall protector, and boilers, a large and fine contribution. J. G. Smeaton & Co., Fulham, three boilers. J. G. Thomas & Co., 362, Edgware Road, excellent specimens of wirework. Waite, Burwell, Huggins & Co., 228, Upper Thames Street, "Excelsior" lawn mowers. Ward and Garrard, Ipswich, horticultural casket and case of patent budding knives; and Whitbourn & Young, 4, Ludgate Circus Buildings, flower boxes, decorated by the xylographic process (Whitbourn's patent). A great improvement in window boxes, which are made of zinc, the ornamental woodwork being readily moveable by a simple and efficient contrivance.

CONVERSAZIONE.

This was held on Tuesday evening, the opening hour being nine o'clock. The doors might with advantage have been opened five

minutes sooner, and no doubt would have been if any of the authorities had observed the crush at the entrance—ladies and gentlemen in evening dresses standing on saturated ground, and the rain falling freely. The Exhibition was illuminated by the electric light, one light being in the entrance vestibule, twelve in the long tent, three in the large marquee, and three in the conservatory. One light of the British Electric Lighting Company (the central one) in the marquee was a failure; the others very vivid. The same Company's lights in opal globes on standards in the long tent—fitted with Wyld's patent carbon holders, the electric current being supplied by Wyld's patent electro-magnetic induction machine—were the most successful, the light being brilliant, but not oppressive. In the same tent light, but a little less brilliant, was supplied by the Société Générale d'Electricité, with the Jablochkoff candle. The entrance vestibule and conservatory were brilliantly lighted by Messrs. Siemens Brothers. As a light for flower shows Wyld's patent proved the most satisfactory, the naked lights being suitable for placing at a high elevation for illuminating large spaces. Only the dark flowers, such as the crimsons, were affected by the light, and those flowers assumed a slightly bluish tint. The blue flowers were not altered in appearance, neither were the yellows, both colours appearing precisely the same as during daylight; white flowers and green foliage were similarly unaffected. Save some portions of the large marquee the Exhibition had a fine effect, the imposing masses of flowers and the rich dresses of the ladies forming a brilliant spectacle; and the band of the Royal Horse Guards (Blue) stationed in the conservatory proved a great attraction to the company, which, considering the rainy night, we were surprised to see was such a large one. The evening was rendered additionally interesting, enjoyable, and instructive by the members of the Queckett Microscopical Club kindly exhibiting their instruments in the eastern annexe of the conservatory. Nearly fifty microscopes were free to all visitors, the objects for examination being portions of plants and flowers, seeds and insects, as for instance Dionæa, Edelweiss, spiral vessels of plants, the Phylloxera, the Colorado Potato beetle, Rose blight, Raspberry seeds three thousand years old, moving plants in water taken from the wayside after rain, and many other objects of equal interest but too numerous to mention. This portion of the Exhibition was greatly appreciated by the visitors, to whom the members of the Club referred to so generously afforded so rich a treat.

Such is the Show—so far as time has permitted us to describe it—a Show of intrinsic merit, of novelty, and of great decorative effect. Grouped together in the different tents are examples of vegetation from almost every civilised country of the globe, and from some which are not perhaps quite civilised; grouped, too, to great advantage and in an artistic manner by Mr. Barron, aided by Mr. Thomson, late of the Crystal Palace. A Show that has called for the exercise of much thought and taste, and which has involved much labour—labour willingly expended when most of the admirers of the Exhibition were sleeping; a Show that reflects credit on all who have shared in producing it, from the Council downwards through all the exhibitors and officials, for all have worked earnestly, and all deserve praise even if they do not covet it, for that which is valued most by all has been achieved—success. A Show also that could be enjoyed by the visitors, for long before the hour of opening a catalogue of the Exhibition was printed with a full list of entries and the names of the respective exhibitors in every class. The celerity with which this work was done merits a meed of recognition, as it assuredly was of great convenience to the numerous visitors.

The Show closes on Friday, and we trust that finer weather than that of the opening day will enable all who are interested in high-class cultivation, and who desire to witness a grand floral display, to visit what is unquestionably the finest Exhibition of the year.

MR. WILLS'S MEETING.

According to announcement this was held on Tuesday in one of the rooms of the Albert Hall, the object being the promotion of an International horticultural exhibition in London next year. The attendance was good, the room being quite filled. After waiting for some time for Lord Skelmersdale to take the chair, Mr. Fraser by request of Mr. Wills accepted that position. After a considerable amount of discussion, some reluctance on the part of the meeting to propose or second anything, and some confusion as to the nature and import of proposals and amendments, it was eventually decided that it is desirable to have an exhibition in London this year; and that the sense of the meeting be conveyed to the existing committee, which has decided not to hold a show in 1880, to reconsider their decision. There was only one dissentient to the voting of the resolutions of which we have given the purport, but several gentlemen did not vote at all. A strong impression prevailed of the inadvisability of any action being taken that should even have the semblance of clashing with the duties of the existing committee; but on the contrary, the importance of promoting unity and harmony amongst all who are interested in the movement was unanimously admitted. Besides the chairman and convener of the meeting, Messrs. W. Thomson (Clovenfords), Arnott, Cutbush, Cannell, G. Paul, Croucher, and Dean took part in the discussion.

NOTES AND GLEANINGS.

We have received the schedule of the GREAT WHITSUNTIDE EXHIBITION, which opens at Manchester on the 30th inst. and continues until June 6th. The schedule is extensive, including seventy-two classes, and the prizes are very liberal throughout. Twelve gold medals are offered—namely, for ten Dracænas, twelve hardy Ferns, eighty herbaceous plants, one hundred miscellaneous plants in pots, twenty-five Hollies, ten hardy evergreen trees and shrubs, ten Clematises, eight Crotons, a collection of Japanese plants, twelve new and rare plants, and a collection of Amaryllises. The prizes for twenty stove and greenhouse plants, ten of them to be in flower, are £30, £20, and £10; and Orchids and Azaleas and other plants are well provided for. The Exhibition is sure to be both large and excellent, the Orchids alone at former shows being worth a long journey to see. The arrangement of the exhibits is also certain to be admirably carried out under the superintendence of the experienced Curator Mr. Bruce Findlay, who has given many examples of superior taste during past years.

—— We have received the following notification from the Honorary Secretary of the PELARGONIUM SOCIETY:—"It being very desirable that all the novelties exhibited for the Society's Certificate of Merit should be presented in the best condition for adjudication, arrangements will be made so that the Censors and Executive Committee will meet for that purpose on June 24th, as well as on July 8th, the latter day having been adopted for the Society's Show instead of the former, in consequence of the lateness of the season. In submitting the new varieties for adjudication Rule 7 must be strictly observed. On June 24th any plants that may be staged will be placed in the conservatory. As the Royal Horticultural Society has fixed July 9th for its evening *fête*, the leaving of the exhibits over the night of the 8th must be entirely at the option of the exhibitors."

—— THAT very fine plant MEDINILLA MAGNIFICA is flowering in the stove at Kew, and has seventeen of its beautiful pendulous inflorescences of pinkish flowers and bracts, the broad dark leaves also being extremely healthy. It requires a warm position in which to mature its growth.

CRYSTAL PALACE SHOW.

MAY 24TH.

THE weather on Saturday was all that could be desired, and undoubtedly contributed greatly to the success of the Exhibition, by attracting a very large and fashionable company of visitors. The exhibits were not very numerous, but Azaleas were shown in good form, also foliage plants, and the Roses from Mr. C. Turner and Messrs. G. Paul of Cheshunt were excellent. The enormous specimen Roses from the latter firm were arranged in front of the theatre, Mr. Turner's eighteen being placed on each side of the group, which thus formed a magnificent bank of floral beauty. At the four corners of the centre transept specimen Azaleas were placed, the remaining exhibits being arranged on sloping stages down the centre of the building.

STOVE AND GREENHOUSE PLANTS.—In the nurserymen's class for nine specimens in bloom there were only two competitors. Messrs. Jackson & Son, Kingston-on-Thames, were placed first with good specimens of Hedaroma fuchsioides, Boronia pinnata, Aphelexis macrantha rosea and purpurea, Rhododendron Countess of Haddington, Imantophyllum miniatum about 4 feet through and bearing over twenty-four trusses; Erica depressa, good; Pimelea Hendersonii, very profusely flowered; and Anthurium Schertzerianum with over thirty fine spathes. Messrs. Peed and Sons, Roupell Park Nurseries, Norwood Road, were second, also with healthy specimens. In the corresponding amateurs' class Mr. W. Chapman, gardener to J. Spode, Esq., Rugeley, was awarded the first prize for magnificent plants of Erica depressa, E. Cavendishiana, Dracophyllum gracile, Anthurium Schertzerianum, Statice profusa over 5 feet high with very dark and richly coloured flowers; Acrophyllum venosum, a handsome specimen; Ixora coccinea, 5 feet high, freely flowered; Ixora Prince of Orange, and Tremandra ericæfolia. An admirable collection. Mr. B. Peed, gardener to Mrs. Tredwell, St. John's Lodge, Lower Norwood, was placed second with a group including two good Azaleas—viz., Iveryana and Extranei, and some fair Ericas. In the amateurs' class for six plants the last named exhibitor was first with extremely vigorous and well-grown specimens. Mr. Chapman was a close second, one plant—viz., Chorozema Chandleri being remarkably fine. Mr. James Child, gardener to Mrs. Torr

Garbrand Hall, Ewell, was deservedly awarded an extra prize for a collection of healthy plants.

Ericas were not very numerous nor in first-rate condition. In the nurserymen's class for four plants Messrs. B. Peed & Sons, Norbury Nursery, Lower Streatham, were the only exhibitors, and were awarded the premier prize for small but good plants; while in the corresponding amateurs' class Mr. B. Peed staged a collection of only average merit. There was no award.

GREENHOUSE AZALEAS.—In the five classes appropriated to these plants there was good competition, and some excellent specimens were exhibited. In the nurserymen's class for nine Mr. Charles Turner, Slough, was placed first with finely flowered specimens of Comtesse de Flandres, Chelsoni, Duc de Nassau, Duchesse de Nassau, Etendard de Flandres, Reine des Fleurs, and Cedo Nulli. Messrs. James Ivery & Sons, Dorking, were second with smaller but also good specimens; and Messrs. B. Peed and Sons were awarded an extra prize. In the amateurs' class there were three entries. Mr. J. Child obtained the first position with plants of medium size but most profusely flowered. Mr. A. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, was second with enormous specimens but not flowering so abundantly.

In the nurserymen's class for six plants Messrs. Jackson & Son obtained the first prize for the only exhibit, comprising plants of average size, but bearing extremely fine flowers. In the corresponding amateurs' class Mr. Ratty was deservedly adjudged the premier award for handsome specimens trained on umbrella trellises, including the varieties Zenobia and Princess Charlotte in splendid form. Mr. B. Peed followed with a collection of average merit. In the open class for eighteen plants there were three entries, Mr. C. Turner being first with specimens of moderate size, but remarkably equal and superbly flowered. Mr. A. Ratty came next also with excellent plants; Messrs. James Ivery and Sons being justly awarded an extra prize for a collection of nearly equal merit.

In the nurserymen's class for nine fine-foliage plants the only exhibitor was Mr. B. S. Williams, Upper Holloway, who was awarded the first prize for handsome specimens of Chamærops humilis, Cocos Weddelliana, Phormium tenax variegatum, Croton Wiesmanni, Dasylirion acrotrichum, Pandanus Veitchii, Cordyline indivisa, and Zamia Lehmanni. In the corresponding amateurs' class there were four competitors, Mr. Charles Rann, gardener to J. Warren, Esq., Handcross Park, Sussex, easily obtaining the highest award with magnificent Crotons, Palms, and Cycads, and a fine Dasylirion. Mr. Penfold, gardener to the Rev. Canon Bridges, Beddington House, Beddington, Surrey, and Mr. Ford, gardener to J. G. Meegaw, Esq., Windermere House, Upper Norwood, being equal seconds with highly meritorious plants.

ORCHIDS.—In the nurserymen's class for nine distinct species or varieties Mr. B. S. Williams was first with excellent specimens of Odontoglossum Pescatorei, O. vexillarium, Dendrobium Parishi, Cattleya Mossiæ with fourteen fine blooms, C. Mendelii with seventeen large flowers, Masdevallia Lindeni, Cypripedium Swannianum, and Lælia purpurata; Mr. H. James, Castle Nursery, Lower Norwood, being placed second with a very good collection. In the amateurs' class there were three exhibitors, the premier prize being awarded to Mr. Luff, gardener to R. R. Hyatt, Esq., The Hawthorns, Streatham, for excellent plants—Phalænopsis grandiflora with nine spikes, Cypripedium barbatum nigrum with over three dozen blooms, and C. villosum with twelve fine blooms. The second prize was adjudged to Mr. Child, and an extra prize to Mr. B. Peed.

In the nurserymen's class for nine stove and greenhouse Ferns Mr. B. S. Williams secured the first prize with the only collection, including extremely fine specimens of Gleichenia dichotoma, G. speluncæ, G. flabellata, G. rupestris, Todea superba, Trichomanes radicans, Davallia Mooreana, and Adiantum farleyense. Mr. Penfold, also the only exhibitor, was placed first in the corresponding amateurs' class, Doryopteris nobilis, Adiantum peruvianum, Davallia Mooreana, and Todea hymenophylloides being especially remarkable. In the amateurs' class for nine distinct Crotons there were three entries. Mr. Rann secured the first prize with grand specimens of C. Hendersoni, C. multicolor, C. Cooperi, C. majesticum, C. angustifolium, C. volutum, and C. Youngi. Mr. Penfold was second with smaller but healthy and well-coloured plants. In the amateurs' class for nine Dracænas there were four entries, Mr. Rann was again first with D. Goldieana, D. Robinsoniana, D. Bausei, D. Shepherdi, D. Rex, D. grandis, D. vivicans, and D. terminalis alba. Mr. Bird was second, an extra prize being awarded to Mr. Brayton, gardener to F. P. Allister, Esq., Beckenham.

In the nurserymen's class for nine tuberous-rooted Begonias Messrs. Laing, Stanstead Park Nurseries, Forest Hill, were awarded the first prize for an excellent collection, including the following fine varieties: Violacea, Calypso, Charles Rees, T. W. Ferrand, Marquis of Salisbury, and Massange de Louvrex. Messrs. Jackson and Sons were second also with good and brightly coloured plants. In the corresponding amateurs' class Mr. A. Luff was first with well-grown plants of El Dorado, Cleopatra, and Mrs. D. Todd; and Mr. Brayton second with small specimens, but including a fine plant of Dr. Duke.

In the nurserymen's class for nine Roses Messrs. Paul & Son, Cheshunt, staged the only collection, and secured the first prize with magnificent specimens in perfect health and beauty, the blooms being both numerous and of great size. The varieties were Souvenir d'un Ami, Edouard Morren, Docteur Andry, Charles Lawson (grand), Anna Alexieff, Céline Forestier, Beauty of Waltham, Victor Verdier, and Madame de St. Joseph. In the open class for eighteen plants the only exhibitor was Mr. Charles Turner, who was awarded the first prize for plants of medium size, but extremely healthy and well flowered. The best were Madame Lacharme, Royal Standard, Dupuy-Jamin, Duc de Montpensier, and Perfection de Montplaisir.

There were four classes for Pelargoniums, and only one entry in each, the two exhibitors securing the first prizes in all the classes. In the nurserymen's class for eight show varieties Mr. C. Turner staged some good specimens of Digby Grand, Mabel, Duchess of Edinburgh, Prince Leopold, Isabella, Snowflake, Viscount, and Claribel. In the corresponding amateurs' class Mr. James, gardener to F. Watson, Esq., Redlees, Isleworth, staged a collection, including similar varieties to the preceding, all very good. In the nurserymen's class for eight fancy varieties Mr. Turner exhibited the following:—Lucy, The Shah, Belle of the Season, Countess of Dudley, and Fanny Gair. In the amateurs' class Mr. James exhibited specimens of Madame Sainton Dolby, East Lynn, Princess Teck, and Ellen Beck in exquisite condition.

In the open class for eight herbaceous Calceolarias there were five entries. Mr. James was first with extremely dwarf and sturdy plants, the individual blooms being large and finely coloured and the trusses good, and for one named Crystal Palace a first-class certificate was awarded; the flowers were numerous, richly coloured, and in dense compact trusses. Mr. James Ford was second with plants of nearly equal merit, and an extra prize was awarded to Mr. Salter, gardener to A. Sillen, Esq., Sydenham. In the open class for eight Cinerarias Mr. James secured the second prize. This was the only collection, and of average merit. In the open class for eighteen alpine and herbaceous plants Mr. Parker, the only exhibitor, was awarded the first prize for a pretty collection. The amateurs' class for nine plants was not represented.

Extra prizes were awarded for miscellaneous collections as follows:—To Mr. B. S. Williams for an elegant group of new and rare plants; to Messrs. John Laing & Co. for a group, and also for three boxes of fine Pansy blooms; to Mr. Boller for a group of succulent plants; to Mr. Joshua Prewett, Swiss Nurseries, Hammersmith, for five boxes of superb cut blooms of Maréchal Niel; to Messrs. Wm. Paul & Son, Waltham Cross, for eight boxes of magnificent cut Roses, including over two hundred blooms; to Messrs. George Jackman & Son, Woking Nurseries, for a group of excellent Clematises; and to Messrs. Dick Radclyffe & Co., High Holborn, for a novel and artistically arranged rockery and fountain.

The following first-class certificates were also awarded:—To Mr. B. S. Williams for Croton Henryanus, leaves elliptical, veins and midrib yellow; C. Williamsi, large leaves veined and blotched with red and green; Sarracenia Williamsi, very distinct; Adiantum Williamsi, extremely neat and graceful species, the fronds light green with rounded pinnules; and Cupania elegantissima, shining pinnate leaves 18 inches to 2 feet long. To Messrs. Laing for the following Tuberous Begonias—J. H. Laing, a very large flower and brilliant scarlet colour; Althæflora, large double scarlet; Comtesse H. de Choiseul, roundish double creamy pink, very distinct; Maude Churchill, large blooms, yellow, very dark foliage. Marie Benchet, a rich double scarlet. To Mr. Boller for Mammillaria filifera.

SHRUBBERY ORNAMENTS.

MAHONIA FASCICULATA HYBRIDA—SPIRÆA PRUNIFOLIA FLORE-PLENO.

Two valuable spring-flowering shrubs, the one evergreen, the other deciduous, that are not so extensively cultivated as their merits deserve, are the two shrubs above mentioned. In the shrubbery adjoining the residence of Messrs. T. Francis Rivers at Sawbridgeworth this fine Mahonia is now in splendid condition. The bushes of it are about 6 feet high and through; they are near the front of the border, receding in a natural manner amongst the taller trees and shrubs behind, and are laden with grand clusters of orange yellow flowers that contrast effectively with the glossy foliage and produce a singularly bright and cheerful effect at this period of the year. The same shrub is also a mass of gold in Mr. William Paul's Nursery at Waltham Cross, and is being largely increased as an evergreen of considerable merit, and much superior to the well-known M. aquifolia. It is quite as hardy as the type, its foliage is equally glossy, while its flowers are larger, brighter, and altogether more striking. It ought to be grown in all shrubberies in preference to the old form above referred to.

Spirsea prunifolia flore-pleno is also flowering in Mr. Paul's collection, and is a mass of snowy whiteness particularly chaste,

and appears to great advantage amid the surrounding greenery. The shrubs resemble feathery globes about 4 feet in diameter, and combine elegance with symmetry in a very pleasing manner. In borders where this Spiræa can have sun and air to mature its growth, so that it can flower as freely as it is now flowering at Waltham Cross, it cannot fail to give satisfaction to all who include it in their collections of ornamental shrubs. The fruit trees, &c., in the first-named nursery, and the Roses, &c., at Waltham Cross, will be referred to in a future issue.—J. W.

ADIANTUM WILLIAMSII.

THIS valuable addition to an elegant class of plants is truthfully represented in the annexed engraving, for which we are indebted to Mr. B. S. Williams, after whom the plant is named, and by whom it is now being distributed. We have seen this plant in various stages of growth, and have observed that it is equally attractive in both a large and a small state. As a specimen it is characterised by extremely graceful drooping fronds with light green, shaded, somewhat reniform pinnules, the divisions of the rachis being dark-coloured and hair-like. It is a native of Peru, where it grows at an elevation of 12,000 feet above the sea level. Mr. B. S. Williams was awarded a first-class certificate for the plant at South Kensington in 1877, and also at the Crystal Palace Show on Saturday last. It is likely to become very popular, not only as a decorative plant but for cutting purposes, for which it is especially adapted. This distinct and graceful Maidenhair is further valuable on account of its free growth, as it may be cultivated as easily as A. cuneatum, and succeeds in a cool stove or warm greenhouse temperature.

Fig. 56.—ADIANTUM WILLIAMSII.

TRAINING VINES.

MR. E. LUCKHURST'S able notes on page 301 set us Cabbage growers thinking. Although I quite agree with your correspondent so far as regards the importance of giving ample room for the foliage, not stopping to one or two eyes above the bunch, yet it appears to me that if we sling the Vines 2 feet below the glass we shall in many cases require more lofty vineries. If I were to sling the Vines under my charge 2 feet I should have to go into the houses on all fours, and Mr. Luckhurst, I am sure, would think that undesirable. During the eleven years I have had the pleasure of being here all our vineries but one have been re-wired, and the standard is 18 inches from the glass, which I find ample not only for the foliage but for the laterals. Not one of these I allow to be taken off after the Grapes commence colouring. There is nothing so conducive to good colour in Grapes as to allow the Vines to grow when the Grapes are changing. Stop the laterals, you stop root-action and so stop colouring. The one vinery that has not been re-wired is a mixed house of late varieties, the wires being only 12 inches from the glass; and this season I have slung them from 6 to 10 inches below the wires, and certainly there is a marked improvement in the general appearance of the Vines.—R. GILBERT.

THE USE AND ABUSE OF PARAFFIN OIL.

ALLOW me to correct an error which appears in my note respecting the use of paraffin oil at page 385 of last week's Journal, the quantity of oil somehow or other being omitted, and which ought to have been a wineglassful mixed with a gill of boiling water and soap. It works best by first mixing the soap with the water till about the thickness of cream, then add the oil, stir it up and pour this mixture in five gallons of hot water. We have used it for sponging, syringing, and dipping plants with the best results as a thorough cleanser, and have

not seen any bad effects on the health of the plants treated to a shower or plunge bath of this mixture during the last five years we have used it.—G. L. M.

GASTROLOBIUM VILLOSUM.

THE plant represented in annexed engraving is one of the numerous showy Leguminous species from Australia, whence it was introduced by Messrs. Lowe & Co., who flowered it in 1846. The flowers are freely produced, generally in three terminal racemes; the standard is large, of a dark orange colour, while the wings and keel are claret-coloured. The leaves are dark green, terminating in small hooked spines. The stems and leaf margins are thickly set with stiff hairs, from which character the specific name is derived. The species requires similar treatment to the majority of greenhouse hard-

Fig. 57.—GASTROLOBIUM VILLOSUM.

wooded plants—viz., a soil composed of sand, loam, and peat, efficient drainage being provided and watering carefully attended to. It blooms during May, and is deserving of more general cultivation.—L. C.

BORING AND SEARING APPLE TREES.

IN a cottage garden the other day I observed a sapling Apple tree about 5 feet high. The owner, widow of a carpenter and possessor of some small properties in houses and gardens, told me she was sure it was a good sort by the leaf, that it had been raised from a stray pip, so she meant to preserve the tree now nearly four years old. "But you will graft it," I observed. "Oh! no; I never graft my fruit trees. When the stem gets thick enough I make a hole right through it about 4 inches from the ground, and then burn it with a red hot skewer; this checks the sap and makes it bear." "But good sorts?" "Yes;" and calling a neighbour and tenant of her own she invited me to hear her testimony to the goodness of the Apples thus produced. My informant, a very shrewd old woman past seventy, told me she saw the process done by an old man when she was young, and had consequently always managed her fruit trees on the principle I describe. Is it a usual way of treating fruit trees amongst working people who understand gardening? It was new to me.

As to our Roses, one perfect day amongst the last days in April gave all vegetable life great impetus. The air was still and warm as well as sunny; the blossoms of the Apricot and Box trees were thronged with bees. Next day all was wrapped in thick sullen gloom. The cold was penetrating; not a solitary bee, hive or wild, was to be seen, and it was painful to observe the pinched collapsed look of the blooms. The early days of May were sunny, but the winds were keen and parching; still, spite of these and the night frosts Roses continued

to push well until the snow showers and sleety strong north wind of the 7th severely checked the Teas, and even considerably embrowned the Hybrid Perpetuals. Setting Apricot blossoms are nowhere, and later blooms have crumbled away. A Peach tree and a Marie Louise Pear tree on the same wall are unusually richly in flower, and I hope may escape. In the open every kind of stone fruit as well as Pears and Apples are very backward.—A. M. B.

CARNATIONS AND PICOTEES.—No. 5.

THE Carnation, in addition to its beautiful flowers and sweet perfume, is extensively employed in some districts as a medicine. For this purpose the flowers only are used, and from them a syrup is made, considered by those who use it as a sovereign remedy for colds, coughs, &c. It is very pleasant, having a peculiar flavour which resembles Cloves. The varieties employed are chiefly selfs, and are sold at about 6*d.* per score flowers.

The Rev. J. Jeans writes thus on the Carnation in his "Philosophy of Florists' Flowers" upwards of thirty-three years ago:—"Another way in which an adventitious magnitude is produced is when the lines both of form and colour are parallel instead of crossing each other, and both run outwards (that is, towards infinity) without a stop. This is well illustrated in the singular difference of effect produced by the three florists' species of Dianthus—the Carnation, Picotee, and Pink, whichever may be the favourite—none, I think, will deny that all the grandeur belongs to the Carnation. The reason of this is quite intelligible, and arises (to compare small things with great) from the same difference of principle that separates Gothic architecture from classical — the principle of perpendicular and of horizontal lines. The stripes of the Carnation are disposed longitudinally, the same way with the length of the petal, and are not terminated by any visible end. They run out as it were, and lose themselves in space. The lacing on the petal of a Picotee or Pink is stopped by its adjoining one, and it is transverse to the length of the petal. It forms a visible termination both to the flower and to its colours. Hence a Pink, often as large as the largest Carnation, will necessarily appear small and confined in comparison. The restricting mode of colour, however, has its advantages as well as its disadvantages. For the Carnation, from its greater variety both in forms and colours, ought to be the prettiest of the three; in which quality, I believe, most of my fair readers would be disposed to place it where I should myself, as the last instead of the first. There is a sort of masculine character imparted to it by its concentrated efforts towards magnitude, which impairs its delicacy. It is this direction of the lines of colour in the Picotee which makes what are called 'bars' a disfigurement—a sentence which many denounce as capricious and unreasonable, not considering that they are transverse to the lines of colour, and that lines at right angles are necessarily harsh." Again the same writer observes: "The Auricula, the Pelargonium, and perhaps the Carnation, present more of a picture, and have more properties or points that conduce to excellence than the Rose."

How long has the Rose been a cultivated flower, and how many striped or edged flowers are to be met with? Some shaded there are certainly, and a few — very few — striped. How is this to be accounted for? That the Rose will stripe we know quite well: take, for instance, that old Rose, bushes of which I remember to have seen growing upwards of forty years ago—I mean the variety called York and Lancaster. That it will produce seed I know, having seen plants of it with numbers of heps on in the autumn. The question arises, Do our growers of Roses, instead of trying for variety, go in only for size? If so, there is no wonder that in a stand of, say, twenty-four varieties of Roses, we find several hardly distinguishable from one another; whilst several others are particularly noticeable by their size and coarseness.

WORK FOR MAY.—The present season being so cold and late leaves nothing new to be said; but as all seasons are not alike it will be as well to give the directions as if it had been an ordinary season. The plants should now be on the stages where they will bloom, which should be constructed so that the plants may be protected from the cold winds which are liable to prevail at this time. It is wonderful how little protection is required. A few Russian mats nailed up to windward, or a few hoops placed over the pots and covered with garden netting, will be sufficient protection. Secure the plants to rods, for although the plants may not have thrown up their flower stems sufficiently long to tie them, yet the plants have been making root; and if the operation is done now there is less danger of breaking the roots when placing the rods in the pots. If the weather is cold and dull do not give much water; whilst, if the weather is warm and genial, give copious waterings. My plan is to water in the evening and syringe in the morning, always giving water during the day to any plants I may see flagging.

Look out for green fly, also for the cuckoo fly or froth insect; also hunt for wireworms any plants which have commenced growing and suddenly flag and die, being most probably destroyed by that pest. My plan is, if I do not find the wireworm at once to empty the pot, taking the plants out carefully, and examining the soil until I find it, when I at once repot the plants, placing them in a frame, and shading for a few days until they have made a start again. Remove all old decayed foliage, as nothing looks more unsightly. If the soil is caked from heavy rains or hot sun, stir frequently but not too deep. Remove all weeds as fast as they appear. One or two weedings will keep the plants clear for the season.

Plants in Beds.—The same rules apply to these as to plants in pots. The slug family, if a moist time prevails, is likely to be troublesome: these must be looked for at every available opportunity and destroyed. I find the early morning—4 to 5 A.M.—a good time to look for them, whilst a few young ducks are invaluable.

Seed.—Those sown in pans may be pricked out, about 2 inches apart, in boxes as soon as the cotyledons appear, using good soil, not too rich, containing a small proportion of leaf soil, and providing efficient drainage. Watch for slugs, as one can destroy a large number of plants in a single night; whilst every green fly must be removed at once, making use of a brush, a small tube or blower, or a small decoction of Gishurst compound in solution, which I have always found the best.

To those who propose exhibiting now is the time to look over the boxes and stands, making all the needful repairs, repainting or varnishing the stands and boxes if necessary. A drab colour is the best for the boxes, whilst the stands look best with the top side a bright pea green, the ends and sides being a coachmaker's green. If new stands have to be made see that they are neat and well finished, as nothing sets off a flower to more advantage than a handsome stand. Anyone visiting the National Exhibition at London will see for themselves how much neatness of stands adds to the attraction of the exhibition. The following is the size of the stands employed at the National Exhibitions:—Collections of twelve, three fours of the following dimensions—viz., from centre to centre, 3¾ inches; centre to outside, 2¼ inches; outside length, 15¾ inches; width, 12 inches; depth, 4¾ inches. Collection sizes, in boxes of three twos as above. Some growers have the tubes attached to a zinc plate, which forms the top or face of the stand, and very neat they look.—GEORGE RUDD.

EUCALYPTUS GLOBULUS.

I HAVE noticed, according to the reports in your columns, that the Blue Gum, or Eucalyptus globulus, seems to create considerable interest in England, the tree having the credit of being a powerful sanitary agent. The following instance may be of interest to some of your readers. I was residing in the suburbs of Launceston (Tasmania), where a large quantity of the offal from the municipal slaughter houses was being carted and mixed with stable manure, and left in large heaps to decay. Near the heaps was a long row of Blue Gum trees, and all those nearest to the manure seemed to grow very strong and healthy, and underneath them, as far as shaded by the foliage, the growth of grass was very dense and rank, which I attributed to the manurial properties which had been secreted by the foliage of the Gums and washed off by the rain. There was no extra growth upon the grass out of the reach of the trees, nor under any of the other Gums at a greater distance from the manure.

There were other varieties of Eucalypti in close proximity to the manure, but they did not exhibit this peculiarity. The Blue Gum naturally grows very rapidly here, and in many localities stands exposed to rather severe frosts without any apparent injury. You will find that as your trees increase in age that they will lose much of their present beauty and assume a very dark green in the stead of the blue, and cause a good deal of labour in sweeping, as the bark and the leaves are continually falling and look very untidy where they abound.

Some of the other varieties of Eucalypti are far more orna-

mental in my estimation than E. globulus, some of them having light and graceful foliage, and look very feathery, more resembling the Weeping Willow in their habit. They are quick growers and more hardy than globulus. If they were seen and found to suit your climate in England they would become general favourites for ornamental planting.—F. W., *Launceston.*

READING SHOW.

THE Summer Exhibition of the Reading Horticultural Society was held on the 22nd inst. in the Abbey Ruins, an extremely picturesque site at the lower part of the Forbury Gardens. The Show may be fairly characterised as a success, although the classes were not so well filled as on previous occasions; but this was owing to the lateness of the season, and not to any lack of interest on the part of the local supporters. The schedule enumerates forty-six classes, in the majority of which first, second, and third prizes were offered but not in all cases awarded, the value of the prizes ranging between £8 and 2s. The collections were very effectively arranged on sloping banks in a rectangular tent, the centre being occupied with three long tables bearing the ladies' contributions in the form of bouquets and elegant vases of flowers. The specimen Azaleas were very bright, and with the miscellaneous groups contributed largely to enliven the darker Ferns and foliage plants. In the grounds an excellent military band formed an additional attraction, and despite the somewhat threatening weather there was a very large attendance of visitors.

In the class for twelve stove and greenhouse plants Mr. W. Lees, gardener to Mrs. Marsland, The Wilderness, Whiteknights, the only exhibitor, was awarded the first prize for very good specimens of Erica Cavendishiana, Pimelea decussata, Epacris Eclipse, Erica ventricosa grandiflora, Polygala Dalmaisiana, Clerodendron Balfourianum, Franciscea calycina major, Azaleas Sunning Hill and Duc de Nassau, Rhynchospermum jasminoides, Bougainvillea glabra, and Epacris miniata splendens; very healthy and well-grown plants. In the corresponding class for six plants Mr. T. F. Mould, nurseryman, Pewsey, was first with excellent specimens of Boronia pinnata, Aphelexis macrantha purpurea, Clerodendron Balfourianum, Erica ventricosa magnifica, Dipladenia Brearleyana, and Dipladenia amabilis. Mr. W. Miles, gardener to H. A. Simmonds, Esq., was second with a fair collection, Aphelexis macrantha rosea being good. In the class for three specimen Orchids in flower Mr. Baskett, gardener to J. Palmer, Esq., Reading, won the first prize with Odontoglossum citrosmum, Dendrobium thyrsiflorum, and Phalænopsis Schilleriana. Mr. Pound, gardener to J. May, jun., Esq., Reading, was second. For a single specimen Orchid in flower there were four entries, Mr. Atkins taking the premier prize with a very good Dendrobium nobile. Mr. Baskett was second with D. Devonianum, and Mr. Mortimer third with D. nobile.

In the class for a specimen stove and greenhouse plant in flower Mr. Atkins was awarded the first prize for an excellent and very healthy specimen of Clerodendron Balfourianum. Mr. Mould was an equal first with Aphelexis macrantha purpurea about 4 feet in diameter, well trained and healthy. Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, was second with an enormous Anthurium Schertzerianum bearing about four dozen spathes. Mr. Mortimer was third with a smaller plant of the same species.

In the class for nine Azaleas Mr. Miles was first with good pyramidal specimens, the best being Stella, Murrayana, Fielding's White, and Souvenir de l'Exposition. Mr. Lees was second with good specimens, Sir Charles Napier being extremely bright. Mr. G. Pile was third with profusely flowered plants. In the corresponding class for six plants Mr. Lockie, gardener to Lord A. Fitzgerald, Oakley Court, Windsor, won the premier prize with small but neat specimens; Mr. Lees being second, and Mr. Miller, gardener to C. Ellis, Esq., Waltham Place, third. In the amateurs' class for four plants there were three entries. The first prize was awarded to Mr. Miller for good specimens, Mr. Pound being placed second.

For nine stove and greenhouse Ferns Mr. G. Mortimer, gardener to Major Storer, Purley Park, was most deservedly placed first with magnificent specimens of Adiantum cardiochlæna, Davallia Mooreana, Polypodium sporadocarpum, P. angustifolium, Leucostegia immersa, Lomaria gibba, Gymnogramma chrysophylla, Phlebodium aureum, and Adiantum concinnum latum, extremely healthy. The second prize was awarded to Mr. Bezant, gardener to H. J. Simonds, Esq., Caversham, for a collection of smaller plants. In the amateurs' class for four plants there were four competitors. Mr. Hope, gardener to the Hon. R. Boyle, Purley, won the premier prize with Davallia Mooreana, Dicksonia antarctica, Lomaria gibba, and Adiantum formosum; and Mr. Armitage, gardener to N. Clark, Esq., Reading, the second prize.

In the class for nine variegated or handsome-foliage plants Mr. Mortimer obtained the highest award with excellently grown specimens of Croton Weismanni (fine), Cibotium australis, Maranta roseo-lineata, Encephalartos villosus, Alocasia macrorhiza variegata, Latania borbonica, and Alocasia metallica. Mr. Lees was a very good second. In the corresponding amateurs' class for four plants there were three entries. Mr. J. Atkins was placed first with Maranta Lindeni, Cocos Weddelliana, Calathea zebrina, and Croton variegatum. Mr. Bezant was second.

In the class for an effective group Mr. Lees was first with a large and elegant collection, including Azaleas, Ericas, Pelargoniums, Mimuluses, Epacrises, &c., with a groundwork of Adiantum cuneatum, backed up with Fuchsias and Clerodendrons. Messrs. Phippen & Robinson, Reading, were second with a group in which Adiantum cuneatum predominated. In the corresponding class for a smaller group Mr. Burbidge, gardener to B. Simonds, Esq., Reading, was awarded the first prize for a tasteful arrangement of Coleuses, Verbenas, Azaleas, Spiræas, Deutzias, Ferns, and Selaginellas. Mr. A. Burgess, gardener to Col. Clayton, Tyfield House, was second with a group of average merit.

In the class for six Ericas Mr. Mould was first with good specimens of E. Victoria Regina, E. tricolor Eppsi, E. insignis, E. tricolor Wilsoni, E. Lindleyana, and E. profusa. Mr. Lees was second with fair plants, E. vestita being noticeable, and Mr. Pile third.

In the amateurs' class for four Fancy Pelargoniums Mr. Burgess, gardener to Colonel Clayton, Maidenhead, won the first prize with neat plants of Evening Star, The Shah, Sylph, and Princess of Teck. Mr. J. Ashby, gardener to W. Fanning, Esq., Whitchurch, was second with healthy specimens. In the corresponding class for four Show Pelargoniums the last-named exhibitor was adjudged the second prize for the only collection. In the open class for nine Show varieties the same exhibitor was again awarded the second prize for vigorous plants but bearing few flowers. In the class for six Fancy varieties Mr. Miller, gardener to C. Ellis, Esq., Waltham Place, was first with beautiful specimens of Fanny Gair, Cloth of Silver, Princess Teck, Ringdove, and Negro.

In the open class for six distinct Fuchsias there was only one entry; Mr. Hope, gardener to the Hon. R. Boyle, Purley, won the first prize with healthy specimens of Rose of Castille, Wave of Life, Schiller, Avalanche, and Striata. In the corresponding amateurs' class for four plants Mr. J. Mayne, gardener to J. C. Landson, Esq., Reading, was awarded the second prize of the only exhibit.

In the amateurs' class for four distinct pot Roses Mr. Tranter, Upper Assenden, was first with Madame Lacharme, Souvenir d'un Ami, Maréchal Niel, Madame C. Joigneaux, well-flowered medium-sized plants. Mr. Armitage, gardener to N. Clark, Esq., The Cedars, Reading, was second with smaller plants. In the open class for six plants Mr. Mould was first with vigorous plants of Edouard Morren, Madame Lacharme, Charles Lefebvre, and Julie Treyve. Mr. Baskett was second with smaller specimens.

In the class for six distinct Gloxinias Mr. Mortimer was first with excellent plants of Sir Stafford Northcote, Lord Derby, Belfast, Boule de Neige, Marquis of Lorne, and Odorata. On one plant there were three dozen fine blooms, and others were nearly as fine. Mr. Pile, gardener to J. G. Webb, Esq., Bulmershe Court, was placed second; and Mr. W. Baskett third. The Calceolarias were not remarkable; Mr. Mortimer, Mr. Tomlin, and Mr. Atkins won prizes in the order mentioned.

For six plants adapted for table decoration, Mr. H. Ross, gardener to C. Eyre, Esq., Welford Park, was first with Caladium argyrites, Alocasia illustris, Dieffenbachia Bausei, Cocos Weddelliana, Dracænas Guilfoylei, and Vriesia zebrina. Mr. Atkins second, and Mr. Mortimer third. In the class for six distinct Selaginellas, Mr. Mortimer, the only exhibitor, was awarded the first prize for excellent specimens 3 feet high and 2½ feet through S. Poulteri, S. Martensi variegata, S. atroviridis, S. apus, S. cæsia, and S. formosa. S. apus was very beautiful.

CUT FLOWERS.—In the class for twelve bunches of cut flowers there were seven entries, Mr. Tegg, gardener to J. Walters, Esq., Bearwood, securing the first prize with a superb stand. Mr. W. Robins, gardener to C. D. Leeds, Esq., Aylesbury, was second also with good flowers; and Mr. Miller third. In the amateurs' class for six bunches Mr. Atkins was first with excellent blooms, and Mr. A. Burgess, gardener to Col. Clayton, Tyfield House, was second. In the class for twelve cut Roses Mr. Tranter, Upper Assenden, secured the first and an extra prize with extremely fine and well-coloured flowers. Mr. Robins was second with good blooms; and Mr. Mould third. Mr. Brodie exhibited a box of Maréchal Niel Roses in excellent condition. For a group of three vases Messrs. Phippen, Reading, secured the premier position with a graceful arrangement of Myosotises, Aira cæspitosa, Adiantum gracillimum, &c.

FRUIT.—Grapes were not largely exhibited, but were good. In the class for the best bunch of white Grapes Mr. J. Ashby was first with Foster's Seedling, Mr. Tegg was second with Buckland Sweetwater, and Mr. Atkins was third. For the best bunch of black Grapes Mr. Ashby was first with Black Hamburgh; Mr. J. Tomlin was second, and Mr. Atkins third with the same variety. For a dish of thirty-six Strawberries there were nine entries, all remarkably good. Mr. Mortimer was placed first with President; Mr. Bridgeman, gardener to J. Somerstocks, Esq., Great Marlow, was second with the same variety. Extra prizes were awarded to Mr. Bridgeman for a basket of Sir Charles Napier, and to Mr. Mortimer for a basket of more than six dozen extremely fine fruits. In the class for six Peaches Mr. Tegg obtained the

premier award for superb examples of Violette Hâtive, which were also highly commended. Mr. Ashby was second.

VEGETABLES.—In the class for twelve round Potatoes there were four entries. Mr. C. Howe, gardener to Sir R. Sutton, Bart., Benham Park, Newbury, was first; and Mr. Read, gardener to F. Wilder, Esq., Purley Hall, second. For twelve kidney Potatoes there were six entries, Mr. Perkins being first and Mr. C. Howe second. For thirty heads of Asparagus there were ten entries; Mr. G. Cottrell, gardener to E. May, Esq., Oaklands, Reading, and Mr. W. Cox, gardener to J. H. Blagrove, Esq., Calcot Park, being first and second respectively. For thirty French Beans there were seven entries, Mr. Cox being first, and Mr. J. Bellis, gardener to Major Thoyts, second. For three Lettuces Mr. Ashby was first, and Mr. Lockie, gardener to Lord A. Fitzgerald, Oakley Court, Windsor, second. For three Cauliflowers Mr. Cox was first, and Mr. R. Russell second. For a collection of miscellaneous vegetables Mr. Lockie was first with good Leeks, Beet, Lettuces, Cucumbers, new Potatoes, Celery, Carrots, Cauliflowers, Cabbages, Beans, and Asparagus. Mr. G. Perkins, gardener to A. C. Forbes, Esq., Whitchurch, was second; Mr. Hope third. For six stalks of Rhubarb Mr. Read was first, and Mr. J. Hunt, gardener to Dr. Wells, second, there being five entries. For a brace of Cucumbers Mr. Lockie was first with Suttons' Duke of Connaught, and Mr. Howe second. For Peas Mr. J. Tranter secured the first prize with Dickson's First, and Best, and Mr. Bellis the second.

Messrs. Suttons' prizes for a brace of Cucumbers were awarded to Mr. Lockie for Suttons' Duke of Connaught, a fine variety in fine condition; to Mr. C. Howe for Rollisson's Telegraph, and Mr. S. Perkins with the same variety. There were altogether seven entries, the merits of the several exhibits being nearly equal, indicating extremely good culture.

Messrs. Sutton & Sons entertained the several exhibitors to a bountiful repast in the fine lecture hall attached to their seed establishment.

EXTRA WORK AND WAGES IN GARDENS.

I HAVE no doubt that I am as wishful as either "A HEAD GARDENER" and Mr. Gilbert that all worthy young gardeners be paid for overtime when it is systematically adopted. Whatever my facts imply I cannot withhold them, simply because they *are* facts; and amongst these facts is this, that as a rule the foremost gardeners in Britain at the present time are those who were the most willing workers in their youth. A hard-and-fast six o'clock man of the trade union type is, in my opinion, no more likely to attain to a good position as a gardener in the future than he was in the past. I question very much whether I am not doing a real service to young men in stating my experience, not with the object of gaining their approval, but for the higher purpose of pointing the way which, however it may clash with a plausible theory, will certainly lead to their actual advancement.

It is not my intention to continue this discussion, but I desire, since "A HEAD GARDENER" appears to have a *penchant* for logic, to observe that firstly his logic is only one-sided, and secondly that perhaps by a slip of the pen on his part your correspondent attributes to me a statement that I not only never made, but which bears exactly an opposite meaning to what I really did say. The fact I submitted is this: that the rigid six o'clock men of my youth have been signally unfortunate as gardeners, while a large percentage of the willing workers are established in good positions. That fact, even if anyone can be found to regret it, cannot be explained away, and I suspect that it will have at least equal weight with several lines of elaborate argument in proof of an already admitted and abstract right that a man is entitled to be paid for every hour during which he works. And this brings me to notice an important omission in "A HEAD GARDENER'S" logic.

Granting the right of the man as above defined, it is impossible for any unprejudiced observer to ignore its natural and necessary correlative—namely, the right of the master. When a man demands pay for every hour's work he has done, by the same rule a master justly stops payment for every hour when work is not done. This is the "hour system" pure and simple, to which the arguments of "A HEAD GARDENER" inevitably lead. This system is applicable in trade, and even where large gangs of men are employed in working on the land, but it is not applicable to young gardeners in gentlemen's gardens. In trade it is requisite for employers to pay men whose whole time is occupied in keeping the men "at the collar," otherwise the system would not be remunerative. Even in large market gardens gangs of men and women are attended by a "ganger," who does not work, but who watches every moment that the workers are constantly kept with their "noses to the ground." This system obviously cannot obtain in private establishments; it is altogether incompatible with the nature of the work there requiring to be done. In private gardens trusty and trusted men must be employed—men who are not stopped for every day's illness or holiday, nor every ten minutes of time not actually spent in labour. Systematic overtime should of course be paid for, and I have, as before observed, long had the pleasure of paying for it; but I have often had men so willing that they would work when I did not require them to do so—earnest men, loving their work. Those are the men that have invariably succeeded the best, and that is the lesson that I have intended to convey in my remarks on this subject. We must take the world as we find it and make the best of it, improve it all we can by improving ourselves, and doing as far as we can that which is right to those above us and those below us in position. Acting on that principle I am a sharer in the pleasure as expressed by Mr. Gilbert, for I have never taken 5*s.* from a man for teaching him his business, nor have I ever allowed my employer to "pay through the nose" for anything properly coming within the range of my duties.

Before taking leave of this subject I should like to advise young men who prefer working on the hour system to seek employment where the system is adopted, for it is not likely to become established in gentlemen's gardens. To prevent after-disappointment I would also urge the fairness of gardeners clearly and fully stating the custom of an establishment before engaging young men; then if they engage subject to that custom they will have no legitimate ground for complaint if the custom of other trades and places happened to be different. I have nothing more to say.—A NORTHERN GARDENER.

[Nothing more is needed; both sides of the question have been stated fully and clearly, and the discussion is closed.—EDS.]

HAWFINCHES AND BULLFINCHES.

I AM particularly obliged to "J. S. W., *Wortley, Sheffield*," and also to Mr. Cox, Redleaf, and other correspondents for their information about hawfinches breeding in England. This fact was unknown to Gilbert White, and therefore is a fact worth both knowing and remembering. So general is the idea that the hawfinch or grosbeak does not breed in England, or even appear except in winter, that a brother ornithologist suggested to me, since the publication of my former note upon this bird, that the stones of fruits which this bird was found to have in its mouth and crop when shot were the stones of the fruit of the Laurel, which in some seasons and places fruits abundantly if the trees be allowed to grow to a large size and be not pruned. Upon such large Laurel trees we have all, I daresay, seen the stones of the fruit hanging on the stalk, the fruit itself having been eaten by the birds. The theory that the kernels of these were those eaten by hawfinches in winter is ingenious and may be just; but if the hawfinch, as it appears, sometimes breeds in England, then of course it has access to all kinds of fruit stones. Gilbert White's dictum, that "birds of this sort are rarely seen in England, and only in winter," must now at least be modified. Thus information is bit by bit gathered, and thus our knowledge of the rarer birds is increased.

Returning somewhat unwillingly to the subject of the bullfinch, I must, however, say that the old mistake (how long-lived mistakes are!) about the bird opening the buds in search of insects is utterly untrue. This "goody-goody" style of defence is often said of other birds, but in reply I must use the word of one of Goldsmith's characters in the "Vicar of Wakefield"—"Fudge." The bird, and all birds which eat buds, eat them as we eat Asparagus, for food and enjoyment, at just that tender period before the bud expands. We do not eat Asparagus after the delicate stalk feathers out, neither do the birds when the tender bud opens into leaflets. We like the morsel when tender, and so do they. All I want is truth to prevail, but there is no harder battle to fight in this world than the battle of common sense. We have those influenced by sentiment on one side and by prejudice on the other, and what between soft hearts and hard hearts common sense has hard work to make its way. The case, however, against the bullfinch is as clear as the day. Witness the following, which I know to be a fact.

In one garden the gun was not used this winter, and the Gooseberry bushes are three parts or more barren; and naked, dead, or partly dead wood abounds, the bullfinches having taken the vast majority of buds. In another garden about a

quarter of a mile from the former the gun was diligently used, and eight bullfinches killed, and never did I see a better crop of Gooseberries—no dead stems to mar the appearance of the bushes, but the berries hanging regular and plentiful. By my advice the gardener was allowed by his master to use his gun in the bird-infested garden. Master and gardener are both glad now, and so will be mistress and cook. Now I take leave of the bullfinches; would that they would take leave of me! I would advise everyone who wants to gather Pears and Apples unpecked to have the crannies of walls searched for tomtits' nests, for experience has proved to me that they peck the Pears and Apples close to the stalk as each fruit ripens.—WILTSHIRE RECTOR.

PORTRAITS OF NEW AND NOTABLE PLANTS.

CASSIA ALATA. *Nat. ord.*, Leguminosæ.—"A very handsome large shrub, a native of tropical America, whence it has been introduced into all other tropical countries, in many of which it has established itself as a denizen, notably in India, where it is found in gardens and naturalised in Bengal. According to Roxburgh it is known to Europeans in the Carnatic provinces under the name of Mitta tamara; and the same author ascribes also to it names in Sanscrit, Hindi, Bengali, and Telinga, which would go far to establish its claim to be a native of India had the fact of its introduction from the New World not been well established by evidence of various kinds. Drury, in his "Useful Plants of India" page 120, calls it the Ringworm Plant; and citing Roxburgh and others, says that its leaves mixed with lime juice are used as a remedy for ringworm, as are its fresh leaves bruised and simply rubbed into the diseased parts. The leaves are also an aperient, and a tincture of them when dried operates like senna. Further, the Hindoo doctors affirm that the plant affords a cure for all poisonous bites. Cassia alata was introduced into England in 1781 from the West Indies, and has been raised and flowered at Kew from seeds received from the East Indies, but the specimen here figured was flowered by Mr. Bull in December of last year."—(*Bot. Mag.*, *t. 6425.*)

ALLIUM ERDELII. *Nat. ord.*, Liliaceæ.—"This is one of the prettiest of all the Alliums for horticultural purposes. It is allied to the well-known A. nigrum (of which a good figure will be found, 'Botanical Magazine,' t. 1148, under the name of A. magicum), but is much dwarfer, with a very compact umbel of large fragrant flowers, the sharp-pointed white perianth segments keeled with green, the filaments with a stain of bright claret purple at the base, and the ovary a glossy black. It is confined to Palestine, but extends from the Lebanon range as far south as Jerusalem. It has not been known in cultivation till last year we received dried specimens from our diligent correspondent, the Rev. G. E. Post of the Syrian Protestant College at Beyrout, and one of the bulbs being found to be still alive was transferred from the herbarium to the garden, where it revived."—(*Ibid.*, *t. 6426.*)

GOETHEA MACKOYANA. *Nat. ord.*, Malvaceæ.—"This shrub was introduced from Brazil in 1873 by Jacob Mackoy of Liege, and the specimen figured was communicated by Mr. Bull, with whom it flowered in December of last year."—(*Ibid.*, *t. 6427.*)

IRIS DICHOTOMA. *Nat. ord.*, Iridaceæ.—"It is a native of the eastern half of Siberia, and has long been known in cultivation, but it has always been very rare. The drawing was made from a plant that flowered at Kew last September, raised originally from seeds sent by Dr. Hance."—(*Ibid.*, *t. 6428.*)

ALBUCA WAKEFIELDII. *Nat. ord.*, Liliaceæ.—"The bulbs of this interesting new Albuca were sent by the Rev. Mr. Wakefield through Col. Grant to the Kew collection, where the plant flowered for the first time last autumn. Pallastema is a subgenus of Albuca, with a perianth like that of the type, but with a style instead of being short and prismatic, subulate, and much longer than the ovary, as in an ordinary Ornithogalum or Scilla. The subgenus is confined to tropical Africa, and for nearly a century only a single species was known, Albuca abyssinica, named by Dryander, and figured by Jacquin and Redouté. Through the explorations of late years six additional species have been added, four by Dr. Welwitsch in Angola, and one by Baines on the east side of the continent, near the southern tropic. Since 1873 altogether twelve new species have been added to the sixteen then known."—(*Ibid.*, *t. 6429.*)

THE COLORADO BEETLE.—The *Willesden Chronicle* of the 23rd inst. informs its readers that this pest has made its appearance in the garden of Mrs. Morgan of Nicoll Road, Willesden, and that insects have been forwarded to the authorities. We suspect that they will be pronounced to be ladybirds, and hope the announcement referred to will amount to nothing more than the first scare of the season.

DEATH OF DR. KARL KOCH.

IT is with great regret we have to announce the death of Dr. Karl Koch, Professor of Botany at the University of Berlin. He died on Sunday last at Berlin, and had he survived till the 6th of June he would have attained the 70th year of his age.

Dr. Karl Heinrich Emil Koch was born at Weimar in 1809, and studied medicine and natural history in the Universities of Jena and Wurzburg, in the former of which he became a tutor in 1834. He then distinguished himself by his various travels in the East, of which accounts have been published, in one instance translated into English; and chiefly by his abilities as a careful systematic botanist. Dr. Koch's familiar face and kind manner have been well known at the various international horticultural exhibitions which have been held in almost all the countries of Europe during these past years, and this announcement of his death will cause a wide-spread feeling of regret among the many friends who held him in very high estimation.

WORK FOR THE WEEK.

KITCHEN GARDEN.

CAULIFLOWERS, Brussels Sprouts, and Savoys from the early sowings out of doors will now be nearly ready to plant out, which should be done before they become too large. The early winter Broccoli should also be planted out as soon as the plants are ready, for the stronger they become the finer and better protected are the heads. Spring or late Broccoli if too thick in the seed beds should be pricked out in an open situation. Sow late Peas, also Broad Beans. Another sowing may also be made if necessary of Scarlet, Premier, and Butter Beans, as it is scarcely possible to have too many of such vegetables in late summer. Attend to earthing and staking Peas, and if they come up too thickly thin them out to at least a couple of inches apart. Nothing is so injurious to Peas as being crowded and allowing the haulm to fall before being staked. Earth and stake runner Beans as soon as they require it, affording good mulching between the rows, also between those of dwarf Beans, making another sowing of the latter. Let there be no delay in thinning the root crop, so soon as they can well be handled. Make a sowing of Endive for the principal crop. Round-leaved Batavian and Curled are the most useful. Lettuce and Radishes should be sown once a fortnight to maintain the succession, also Spinach; sowing Mustard and Cress at least once a week, so as to always have a good supply. Continue to plant out Celery as fast as the plants are ready. The plants may be put out in beds about 4 feet 6 inches wide, placing the plants 12 inches apart every way, with 4 feet spaces between the beds to admit of soil being taken for earthing. This plan is only available for the crops intended for autumn or early winter use, later plants being best put out in single rows. After cutting the early Cabbages the stumps should be pulled up, though if the ground is not wanted for other crops they will afford a valuable supply of small heads and sprouts for autumn use. At all seasonable times keep the surface soil well stirred around all growing crops. Tender plants, as Vegetable Marrows and ridge Cucumbers, should have a sunny position but sheltered from winds; and if the soil be taken out about 2½ to 3 feet wide and a spade deep, replacing it with 18 inches deep of fermenting materials and covering it with the soil, the plants will start freely and hold out well in hot weather. The ridges for the Marrows may be 6 to 8 feet apart, and for the Cucumbers 4 to 6 feet, placing the plants under handlights, which will assist the plants for a time. Sweet Basil, Marjoram, &c., raised in heat may be planted out in warm situations 9 inches to a foot apart after being well hardened off. Capsicums are sometimes planted at the base of south walls, and in a favourable season succeed fairly, also Egg-plants, both of which should be hardened off preparatory to planting out after the weather becomes warmer. Tomatoes delight in well-enriched soil, and when thoroughly hardened off may be planted out and fully exposed to the sun, but if sheltered from winds so much the better. The earliest fruit of this esteemed esculent ripen in the south and midland counties, but not so well in the north, for they have to be cut in a green state and ripened under glass. Against walls they do better, producing serviceable fruit. The best fruit both as regards colour and flavour is from plants under glass, if a free circulation of air and a somewhat dry atmosphere is provided, the fruit kept dry, and the roots liberally supplied with guano water. Dwarf Beans in frames should be abundantly supplied with water, ventilating freely; similar remarks apply to Carrots.

HARDY FRUIT GARDEN.

Although the weather is still cold the necessity for covering

wall trees is being diminished by the development of the foliage, but it is not yet safe to entirely remove them except such as are of an opaque description, which it will be necessary to remove, otherwise the foliage will become weak and tender. Peaches and Nectarines are showing signs of blister and curl, the latter being due to aphis, and now that the fruit is fairly set the trees should have a thorough washing with the garden engine, and if necessary employ an insecticide. The worst of the leaves affected with blister should be picked off, and a good dusting given of flowers of sulphur. Continue to disbud at frequent intervals so as not to give the trees a check. Thinning the fruit should commence early, especially where it is thick, first removing the badly placed and small fruits, but do this also gradually as advised for disbudding. Apricots also should have the fruit well thinned, removing the badly placed and small fruit. If gumming appears there is no remedy but to cut away the branch, training young wood in its place. Do not allow the shoots to make several inches of growth, but stop them at the third leaf, guiding any suitable for laying-in by small twigs across the branches, and securing extensions by tying or nailing, allowing plenty of space in the ties or shreds for the swelling of the shoots. Pears, Plums, and Cherries appear to be setting well, and Apples also are grand, the bush fruit promising to be a great success. Raspberries that are throwing up many suckers should have them reduced to about half a dozen of the strongest to each stool. Ply the hoe whenever an opportunity offers.

FRUIT HOUSES.

Pines.—The suckers potted last March should, as regards the strongest of them, be in the fruiting pots. If they be not yet potted no further delay should be tolerated, as to retain them longer in small pots is debilitating and detrimental to their after growth. Recently potted plants should have a regular bottom heat of 85° to 95°, and be thoroughly watered after potting, and no more should be given until the soil becomes dry, as it is necessary to exercise more care than usual at this stage, the state of the individual plants being ascertained before its application. Young stock will be making rapid progress, and should be regularly attended to in every particular, allowing such plants sufficient space for development, as nothing is so inimical to sturdy plants as crowding them together in their early stages. Ventilate early in the day at 75° to 80° to render the foliage dry before it is affected by the sun. Discontinue shading successional plants, but for fruiting plants with the crowns in close proximity to the glass a slight shade from powerful sun will be beneficial. Continue the treatment detailed in the last calendar for fruiting plants. The strongest plants that were shifted into fruiting pots last September will be showing signs of fruiting, or if such be not the case means must be applied to effect it with a view to afford fruit for early winter use. The plants should be brought together and subjected to a comparative state of rest for the next five or six weeks, lowering the heat at the roots to 75°, maintaining a free circulation of air about the plants whenever the weather is favourable, ventilating at 75°, and allowing the heat to fall to that degree before closing the house, only employing artificial heat to prevent the temperature falling below 60° at night, not withholding water entirely, but whenever a plant becomes dry supply it liberally. The smaller suckers that were not put into the fruiting pots last autumn, but were wintered in smaller pots and shifted this spring, should be kept growing until the pots are well filled with roots, at which time if thought necessary they may be subjected to similar treatment as advised for the larger ones, and these plants will then give a successional supply of fruit.

Cherry House.—The earliest Cherries will now be ripe, and the principal object will be to prolong the season of supply, preserving them fresh and plump. Unless the foliage be thin, or the trellis of such description as to expose the Cherries to the direct influence of the sun, shading will not be necessary. Free ventilation will be constantly necessary, and during hot weather an occasional sprinkling of the border will be of service. The trees must not suffer through insufficient water at the roots, as in fruit culture this is too often neglected, although it is of great importance; when necessary supply it copiously, so as to assist the development of the buds for next season. Trees in pots will require daily attention in watering, and after the Cherries are all gathered recommence syringing the trees, and should green fly be present fumigate when the foliage is dry. Trees in pots should not be taken out of the house until the buds are well formed, when they may be removed to a position outdoors in the full sun, standing the pots on a bed of ashes, and surround the pots with similar material. Plum trees should be syringed freely every day until the fruit is ripening, when it must be discontinued, otherwise the fruit will crack.

Figs.—To have fruit in perfection it is necessary to keep it free from damp throughout the ripening process, affording a free circulation of dry warm air. The night temperature should be maintained at 65° to 70°, day 75° to 80°, and with sun heat 80° to 90°. There is no comparison between Figs ripened in a close moist atmosphere and in shade and those enjoying full exposure and a favourable atmosphere. When the mulching on the border is well filled with roots apply another mulching 2 to 3 inches thick of well-decomposed manure, which will materially assist the trees in perfecting the second crop. Syringe freely trees from which the fruit is gathered, those in pots being mulched as advised for those in borders. Do not allow the borders in which the trees are growing to become excessively dry, as it will not only prejudicially affect the crop, but cause a rapid spread of red spider. Attend to stopping, thinning, and regulating the shoots whenever it is required.

Melons.—When the fruit is cut from the earliest plants the old stem should be cut back to a strong shoot near its base, removing as much of the surface soil as can be picked out from among the roots, replacing with rather strong lumpy loam pressed well down, and giving a good watering. A moist atmosphere being maintained, and the plants syringed in the morning and about 4 P.M., they will soon start freely, showing fruit in much less time than by planting afresh. If, however, the plants are affected with canker—or from carrying too heavy a first crop, a deficiency of water, or attacks of insects, are very much enfeebled, it is better to remove them, thoroughly cleaning the house, placing strong vigorous plants in ridges or hillocks as advised in former calendars. Fertilising the blossoms with regular attention, maintaining a drier and warmer atmosphere until the fruit begin to swell, being careful not to allow one or two fruits on a plant to take the lead of the rest. Earth up with a good compost, and press it down firmly directly the fruits begin to swell off, watering at once, and about twice a week afterwards. Syringe in the morning and afternoon in bright weather, maintaining a good moisture by frequent sprinkling of available surfaces. Admit air early in the morning, say 7.30 to 8 o'clock, to prevent the foliage being scorched. Keep the growths stopped to one joint after the fruit is set, avoiding overcrowding. To plants in pits and frames afford water once or twice a week as may be required, and damp down at closing time on fine afternoons. Fruits in a forward state should be well exposed to the sun, and when ripening the plants should be kept rather dry at the roots, and withhold moisture altogether from the foliage and fruit, admitting air rather freely. A useful crop of Melons may be obtained by making up beds now of any spent material, which from turning and mixing will generate a gentle warmth, placing over it boxes that may have been used for Potatoes, bedding plants, &c., in each light, placing about two or three barrowfuls of rather strong turfy loam, and pressing it down firmly. Into this turn out a strong healthy plant, pressing the soil firmly about the ball, and giving a good watering. If pits are employed the soil must be about a foot from the glass; and if the weather be bright shade for a few days after planting. Seed may yet be sown to raise plants for frames at present occupied by the tender bedding plants.

Orchard House.—The fruit in this structure is now set and swelling freely, and the trees should be syringed every evening unless the weather is unusually cold. The syringing is especially necessary as regards the Peach, Nectarine, Cherry, and Plum; the Apricot and Pear being less liable to the attacks of insects, less syringing in their case is desirable. The continual syringing with clear rain water will generally be effectual in keeping the trees free from insects, but if aphis be troublesome recourse must be had to diluted tobacco water, or fumigation with tobacco paper. During fine weather the ventilators should be open from six o'clock in the morning to six in the evening, abundance of water being given to trees planted out as well as to those in pots. Where the trees are planted out keep the surface mulched with half-rotten manure, as it tends to encourage the roots near the surface, preventing the water from running off, and checking evaporation. The surface dressing of trees in pots must not be neglected, employing some rich material, supplemented with liquid manure occasionally. Thin out the fruit of Apricots if necessary. It is also necessary to thin Peaches and Nectarines freely, and in many instances Cherries, Plums, and Pears, as a moderate crop of fine well-ripened fruit is far preferable to a heavy crop of inferior size and quality. Stop or pinch out the point of the shoots of Figs at the fifth or sixth leaf, rubbing off or stopping overluxuriant shoots on other kinds of fruit trees in order to secure as far as possible uniform development.

PLANT HOUSES.

Stove.—Bougainvillea glabra coming into flower and intended for conservatory decoration should, when the bracts are colouring, be removed to a house with a temperature 10° to 15° lower than that it at present occupies. Keep the plants rather close, only watering to prevent flagging, otherwise the bracts soon fall if the plants are placed in a comparatively cool house at once. Keep the plants near the glass, as with full exposure the colour is nearly equal to B. spectabilis, and the plants will continue in bloom for a month or six weeks, when they may again be placed in heat, and will flower in September. Clerodendrons, Allamandas, &c., require similar treatment—indeed all plants taken from warm structures should be inured for a time to an intermediate temperature so to enable them to bear the cooler one. Tuberous Begonias that have been in this structure will, after a few days' hardening off, make a grand display in the conservatory for weeks. Young plants of Clerodendrons, Bougainvilleas, Allamandas, Gardenias, with similar free-growing plants, having filled the pots with roots, should be

shifted into others 2 to 3 inches larger, or, if very vigorous, 4 to 6 inches larger. Keep the house a little closer, and syringe overhead twice a day until established, watering carefully until the roots are growing freely in the fresh compost. Tabernæmontanas will be making free growth, and should be encouraged by a moist atmosphere, but avoid overwatering. In too high a temperature they drop the buds, especially when the roots are inactive from the soil being sodden, not an infrequent case with Gardenias. All twining stove plants should be gone over once a week to keep their shoots from becoming entangled, as if that occurs the flowers are often destroyed in liberating them, besides it is a great waste of time. Fire heat will only be necessary to maintain the night temperature from falling below 65°, and to keep it at 70° to 75° by day, admitting air at 75°, and increasing it with the temperature to 85° or 90°, closing early in the afternoon at 80°, syringing at 4 to 5 P.M., and damping down well at 8 to 9 o'clock.

TRADE CATALOGUE RECEIVED.

Robert Mack & Son, Catterick Bridge, Yorkshire.—*List of Choice Dahlias.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

PANSIES (*L. S. K.*).—Although the flowers sent are not equal to named varieties, they are such as you have good reason to be satisfied with as the result, we presume, of a purchased packet of seed. Some of the flowers are good in form, others bright in colour, and all suitable for garden decoration. Your letter having been injudiciously gummed round the box, it was necessarily so mutilated in opening the parcel that only a portion of the contents of the letter could be read. Letters should be placed in the parcels containing specimens, and not employed as gummed wrappers as they often are. We may add, for the information of those whom it may concern, that we not infrequently receive parcels of fruit and plants without any accompanying letter at all, not even the initials of the senders. Replies of course cannot be given in those instances.

REGAL PELARGONIUMS (*Juno*).—This type is remarkable for the floriferous nature of the plants, the large flower trusses, the crimped petals, and effective colours. Besides Captain Raikes, the following are good varieties—Queen Victoria, Prince of Wales, Dr. Masters, Beauty of Oxton, Prince of Novelties, Ville de Caen, Prince of Teck, and Duchess of Bedford.

DACTYLIS GLOMERATA VARIEGATA (*P. H.*).—If the Viola is a dwarf variety, such as V. cornuta splendens, the Dactylis if the plants are strong and the soil good, will be suitable for the purpose you propose. Unless the Viola is a tall strong-growing variety it may be planted in front of the Dactylis.

ROSE NOTES (*J. Symonds*).—The numbers you require are those issued in February and April of this year. You can obtain them from Hachette and Co., 18, King William Street, London, who are the publishers of the journal referred to.

HARDY BORDER PLANTS (*An Amateur*).—You will find an excellent list of hardy plants that are readily raised from seed, on page 388, the reply given to "EDITOR." The seed may sown in the open ground early in June, the soil being well pulverised, and the seed being covered with very light soil. In the case of the smaller seeds the covering must be very slight—a mere dusting. Sow in drills 9 inches or a foot apart, and transplant the seedlings as soon as they are large enough to be handled.

LADY MIDDLETON CARNATION (*A. G. Paul and Others*).—Mr. McLean informs us that Messrs. Methven & Sons of Edinburgh had this Carnation in stock a few years ago, but he does not know whether they continue to supply plants of it.

HOSE-IN-HOSE PRIMULAS (*J. W.*).—The flowers are good, but we have seen many similar to them, and in various colours.

VINE LEAVES INJURED (*J. K.*).—The leaves are covered with warts on the under sides, but we do not perceive any insects, nor do we think the protuberances have been caused by insects. An overwarm and moist atmosphere will affect the leaves in the manner of those we have received, and we suspect that air has not been admitted to the house sufficiently early in the morning, and when the ventilators have been opened too much air has been admitted at once. The edges of the leaves are scorched. We advise you to ventilate early and carefully, keeping the atmosphere rather dry than overmoist, and encourage the production of fresh foliage, for such leaves as those sent cannot perform their functions in a satisfactory manner.

ADIANTUMS IN VINERY—PEACHES (*Flitnts*).—Shade the young Ferns which you have raised from spores when the sun is bright. Keep the soil regularly moist, the pots being placed either in saucers containing a little water, or on an otherwise very moist base, and syringe amongst the pots frequently in bright weather. It is not necessary to syringe the plants if you can maintain a moist atmosphere. When they are large enough to be handled pot them in small pots, using peaty soil, keeping them very moist, and as close as possible for a time. If the pots can be plunged in moist material the plants will thrive the better. If you could improvise a case for the plants in the house by nailing four boards together so as to enclose a convenient space for the young plants, and cover them with squares of glass, they would become established much sooner than if exposed to the full air of the vinery. If you will state about the number of Ferns you want we will make a selection of those likely to suit your requirements. Your Peaches will succeed well if the night temperature is maintained at about 50°, giving air early and abundantly during the day, and syringing freely to keep down red spider, watering the border also copiously. Cases for binding the Journal can be obtained for 1*s.* each through a bookseller, the rules of the post office prevent their transmission by post.

PRIMROSE (*H. H. R.*).—It is nothing unusual to find a multiplication of segments in flowers of the common Primrose, nor no certainty that similar flowers will be produced by the plant next year.

SEEDLING RHODODENDRON (*G. C. R.*).—The flowers were crushed and consequently too imperfect for us to decide on their merits. They appear, however, to be very long in the tube, and the variety is well worthy of preservation.

STOPPING VINES (*T. T. S.*).—If the laterals are very thinly trained the axillary growths may be permitted to form one leaf and then be stopped, pinching further growths as they are produced; but if the bearing laterals are at all close the axillary growths may be pinched out entirely except one or two at the base which are usually small. Occasionally the removal of the growths referred to causes the principal axillary buds to start; but that is seldom and of no consequence, as the laterals have to be removed at the winter pruning, and the buds at the base, which are really important, will not start if you leave the axillary growths there, stopping them at one leaf as we have advised.

RIPENING FRUITS (*J. D.*).—The writer whom you quote has evidently formed a misconception of the subject in question, for the object of ventilation to assist the process of ripening is not the admission of oxygen, although, of course, that would follow, but to increase the exhalation of water from the substance of the fruit, thus assisting the chemical changes occurring in the acids, starch, and gum during their conversion into sugar. It has been proved by many experiments that all green fruits act in precisely the same manner as ordinary leaves under the influence of free exposure to light and the sun's heat—viz., decomposing carbonic acid, liberating the oxygen, and assimilating the carbon which forms so large a proportion of starch and sugar. It is for this reason that all fruits which are required to possess a greater degree of acidity than usual, as for cooking purposes, and also those which are naturally insipid, should be planted in positions where they receive less sun heat than those in which a high flavour and full development of sugar is necessary.

BLOOD MIXTURE (*J. J. S.*).—Use it the same as guano, sprinkling it on the surface of the ground at the rate of about half an ounce to each square yard, or if sprinkled on the soil of flower pots a small thimbleful to a 6-inch pot will be sufficient. For using in the form of liquid manure half an ounce of the powder to a gallon of water will be the proper strength for potted plants.

GRUBS ON ROSES (*M. M.*).—Probably it is the Rose Tortrix, T. Bergmanniana, and can only be eradicated by hand-picking. We do not find it necessary to "ring" the branches of fruit trees at all to make them bear fruit, and we do not advise others to adopt the practice referred to.

GRUB ON CHERRY TREE (*T. H. S.*).—The name of the insect that injures your Cherry trees is Tenthredo cerasi. We know of no satisfactory remedy beyond sedulous handpicking and crushing the grubs with the fingers. Perhaps syringing the trees with quassia water (made by boiling 4 ozs. of quassia chips for fifteen minutes in a gallon of water, to which may afterwards be added three or four gallons of water), would render the foliage distasteful to the insects. Without some data to guide us we cannot suggest a cause for your Cherry tree not setting its fruit.

CATERPILLAR (*G. L.*).—The specimen sent is the caterpillar of the Swallow-tailed Moth (Urepteryx sambucata). It does not feed on Liliums, but on Elder, various fruit trees, and some herbaceous plants, such as the species of Myosotis, but less frequently.

ANTS ON LAWN (*S. H.*).—They are difficult to eradicate without destroying the grass. Sprinkling sulphur and guano is sometimes effectual, and you might try watering the nests with a solution of paraffin at the strength of about a wineglassful to three or four gallons of water, applying it with a syringe, every alternate syringeful being forcibly squirted in the vessel so that the oil and water are mixed as much as possible.

NAMES OF PLANTS (*L. T., Putney*).—The leaf is not sufficiently developed to enable us to recognise the plant. (*G. C. R.*).—1, Metrosideros floribunda; 3, Festuca ovina. The Fern has no spores, and the sprays of Conifers are too small for identification. (*Chorlton*).—We do not undertake to name varieties of florists' flowers; besides, the flowers were so shrivelled as to be quite unrecognisable. (*Juvenile*).—Andromeda latifolia. (*Somerset*).—1 is a Haworthia, but we cannot determine the species from the specimen sent; 2 is quite withered. It appears to be a Myosotis, perhaps M. dissitiflora. (*Capt. C. F. T.*).—Pyrus intermedia. (*Old Subscriber*).—The fungus is the Veined Peziza. (*T. Lowton*).—1, Specimen too small, it appears to be a Retinospora; 2, Euonymus latifolius argenteus marginatus; 3, Euphorbia hiberna; 4, Sisymbrium Thalianum; 5, Too much withered for identification.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

THE SHOEING OF FARM HORSES.

THERE is certainly no part of home farm management more neglected or wrongly conducted than the shoeing of horses, and every day's observation affords us additional proof of the importance of sound healthy feet to the horses; and yet how few, particularly in country districts, are capable of shoeing the animals upon scientific and safe principles! Do we not find that the village smith is the farrier generally entrusted with this work, which is nearly always carried out by himself, his assistant, or may be his apprentice, without the slightest scientific knowledge, construction of the anatomy, and functions of the horse's foot? We cannot blame the

farrier for not understanding the true principles of shoeing. He, having learned in a school which knew no better, follows the fashion in shoeing. Our object, however, in taking up this subject is to furnish the managers of home farms with the opinions and practice of those who, after long experience, are entitled to our earnest attention as the greatest and highest authorities upon the subject. We are ready to confess that for a long period we have often suffered in our farm horses from nearly all the losses, disorders, and difficulties arising from inefficient and unscientific shoeing carried out by the village blacksmith, having no opportunity of availing ourselves of the better knowledge of the subject which we sometimes find in practice in towns at the forge of the professional veterinary. There is, however, too often, even in these establishments, too much of fashion and too little of science displayed in the work; and we are further of opinion that such strong prejudices often exist amongst the owners and stablemen in charge of the horses, that any decided departure from the usual mode of shoeing would be often met with disapprobation and dissatisfaction, although the work may be done upon the most approved principles.

There are various modes of shoeing horses advocated by different people; there are also persons to be found who say that shoeing is unnecessary. We propose, therefore, to refer to these systems separately, first making some remarks as to the proposal of working horses without any shoes at all. Mr. George Ransom, Major-General Romer, and other authorities, proclaim in the *Times* that shoeing is as little necessary for English as for Australian or Brazilian bush horses. With care and preparation all horses, especially those that never have been shod, it is authoritatively declared work better without than with shoes. These observations are no doubt chiefly intended to apply to horses engaged in light fast work, such as hunting horses, &c. The same authorities further state their objection to the cruel rim of hard iron which binds and cramps the sensitive sole of the foot, whilst the stout untrimmed frog—it is urged with perfect reason—would have a much firmer hold on slippery ground under various circumstances. Again, it is urged if the shoeing smith could be superseded £3 to £4 might be saved annually on one very hard-worked horse; immunity from corns, jarring, strains, and splints is promised if the shoes are dispensed with. The practice of foreign countries is adduced as evidence of the practicability of working horses without shoes. Mr. Ransom states his experience of twenty-five years in Brazil, where he records that thousands of horses, carrying 320 lbs. of produce, travel long distances in continuous journeys of three or four months from the interior over every description of road, and his own riding and carriage horses in Brazil although unshod did full work. Major-General Romer says in the Australian bush and in many parts of India few of the horses are shod; and referring to his own experience when in command of artillery in Natal, mentions that the horses were with few exceptions unshod in their fore feet, and none were shod behind. "My own horses," he adds, "of which I had a good many during the five years I was in Natal, were never, with one exception, shod, although I rode them hunting, shooting, and long distances."

We have introduced the above quotations for the purpose of calling attention as to how far this system of working horses without shoes can be applied to the farm animals. If it can—and we see no reason why it should not, particularly as relates to horses which work only upon the land during tillage of various kinds, such as ploughing, harrowing, rolling, and carting of manures along the farm roads and fields—it must be attended with not only great economy but freedom from all the evils arising from shoeing when not done upon scientific principles. But it is quite clear from the evidence as above given that the horses should never be shod from the first whilst young, as the fact of shoeing for a time and then leaving off not only injures the foot for a time, but the horse feels the disadvantage when first the shoes are given up. Then arises the question of how far it would answer to shoe the fore feet properly, and leave the hind feed unshod. As regards economy the plan of working without shoes would be under certain circumstances attended with some advantage, and partial shoeing with small and partial benefit. In looking at the subject fairly it is important to notice that the colts run where they will up to three years old and never suffer in their feet, because the growth of the hoof and sole repairs and makes good all wear and tear.

We must now refer to the subject of shoeing, and dismiss from our mind, for the present at least, the shoeless system, because we must assume that the general work of farm horses, which includes travelling on hard roads and drawing heavy loads, best accomplished when they are shod upon the best system. Now we have arrived at the point when we must inquire most carefully which is the best plan of shoeing. That offered to our notice by a most practical and well-written essay upon the subject by Mr. William Miles in the Journal of the Royal Agricultural Society of England, vol. xviii., part ii., in 1857, will first engage our attention, because it is so thoroughly practical. Mr. Miles introduces an old saying, but a very true one—"No foot no horse," and observes the horse's foot is made up of a variety of textures so elaborately and beautifully combined as to form one complicated but perfect spring, and unless that spring is permitted to have constant freedom of action it very soon gets out of order, the most delicate parts lose their elasticity, and the power of expansion, which is so essential to the soundness of the foot, becomes first diminished and ultimately destroyed, rendering the animal useless. It is sometimes thought that particular kinds of roads and certain sorts of work call for distinct and separate methods of shoeing, but the fact is that no system of shoeing is worth our notice that is not adapted to and that will not answer equally well in every description of work, and there is but one right principle of shoeing which will admit of no variation or compromise. "The shoe must fit the foot, whatever the shape of the foot may happen to be, and it must be nailed to the hoof in such a manner as will permit the foot to expand to the weight of the horse." This latter condition will be best complied with by placing three nails in the outer limb of the shoe, and two in the inner limb between the toe and the commencement of the inner quarter. A larger number than five nails can never be required in any shoe under any circumstances, excepting for the purpose of counteracting defective or clumsy fitting.

The first thing requiring attention is the removal of the old shoe, which should be done without using violent wrenching from side to side, whereby the clenches are dragged through the crust by main force and the horn unnecessarily destroyed. Previously to preparing the foot for the reception of the new shoe we should first consider the kind of foot we have to deal with. A weak flat foot will bear no shortening of the toe, and very little paring or lowering anywhere. The heels of such feet are sure to be too low already and the sole too thin; in fact the less there is done to them the better beyond clearing out the dead horn from the angles at the heels, but the hollow between the bars and the frog should never be touched by the knife in any foot. The frog of the foot may be said to consist of three portions—viz., the horny frog, the sensitive frog, and a thick elastic cushion, which is interposed for the purpose of protecting the navicular joint from injury. The shoe itself should be made neither too light nor too heavy. The smith, having carefully prepared the foot and selected a shoe with a proper amount of seating for it, should fit the shoe to the foot, and bear in mind that fitting the shoe to the foot does not mean fitting the foot to the shoe, an error which they often fall into. We wish also to impress upon the minds of smiths and their employers that horse-shoeing at best is but a necessary evil, and that any attempt to raise it to the rank of an ornamental art must be attended with damage to the horse and inconvenience to the owner. The nails for shoeing usually employed are often very defective in form for giving a lasting hold on the foot, the general run of them being made with heads so short, square, and broad at the top, and so small and narrow at the bottom, with shanks springing suddenly from them; the consequence is that the bottom of the hole in the shoe is occupied by the shank alone, and before the shoe is worn out the head of the nail is gone, and little more than a brad remains to retain the shoe.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This is now fully employed on the fallows and preparing the land for root crops. The mangolds on a fallow preparation should have been put in before this if a full produce is required; but when the land is clean mangolds may be drilled with the prospect of a fair produce for another fortnight yet; they will, however, require to be left closer in the rows when drilled thus late. As a case in point, last year we drilled mangold seed as late as the 15th of June, and had a good crop, more valuable at any rate than Swedes sown at the same time. The land now being prepared for Swedes should be completed by the first week in June, as that is the best period for seeding the land for a full produce of Swedes. If, however, they are required for late feeding in the following spring the 20th of June is soon enough to drill the seed, as they are found to stand the winter better when sown rather late. A very good crop may be expected upon soils adapted for root culture, especially if liberally dressed, a very good application of artificial manure being 2 cwt. of bone superphosphate, 1½ cwt. of Peruvian guano, mixed and drilled together with ashes. The distance between the rows of Swedes should be 20 inches; for we note that in a prize competition for the best Swedes in the field, weight per acre being the object, that the prizes have for the past thirty-four years awarded by a farmers' club been obtained principally by crops drilled at 20 inches apart, and we consider this the best guide that can be produced when the prizes are awarded to crops competed for by many of the most intelligent farmers of a district.

We still continue to recommend, that in case there is much couch to be disposed of, that very much labour to get it clean enough and dry enough to burn in small heaps need not be expended, but we prefer to draw it away, although a considerable amount of earth may be attached, for it saves time when carted away to a heap either to rot or burn as occasion may require. If ashes are wanted for drilling purposes burn it; for when burnt in large heaps the power of the fire is so great that it will burn although not very dry. If ashes are not particularly required it may be allowed to decay in heaps, and will then afford a good

dressing for grass land, or it may eventually be used for the bottom of pig pens, cattle boxes, &c., as an absorbent of liquid manure. The fallows for all sorts of roots, such as turnips of different varieties, must now be kept in tillage one under the other, for whilst couching, &c., is going on in one field the second or third ploughing where necessary may take place in another field, so that instead of the land being all ready for seeding at one time it may be tilled so as to come ready when required for late seeding. In some cases where a long fallow is intended for wheat in the autumn it should not be allowed to remain without tillage for too long a time, but instead of working the land down fine we prefer to plough it several times without any working with harrows, &c.; for although there may be a quantity of couch and weeds in the soil, yet by continuous ploughings it will gradually waste away. The couching and working if required may be done further on in the summer. Where the rye has been fed off, and trifolium also, the land if clean may be ploughed and worked fine immediately after, so as to keep in the moisture so essential in root cultivation. Very good mangolds are often grown as well as Swedes after green crops are fed off, if drilled quickly after ploughing and a liberal dressing of artificial manures are applied. In some cases, however, where farmyard or box manure can be obtained it is a good plan to lay it out and spread as fast as the green crop is cleared away, then plough and press as for wheat. This keeps the stubble and roots under, so that they may rot and help to manure the land, and not be in the way of the root crops at hoeing-time.

Hand Labour.—Where timber has been cut for repairs the sooner the bark is carted away the better, and the timber also, particularly if it is at the side of fields in crop or meadows laid up for hay. The early varieties of grass, such as trefoil and rye grass, in the south will in a few days be fit to cut for hay, and the advantages of cutting grass for hay whilst young and growing are very great, particularly for fatting sheep and lambs. By cutting early, 1 cwt. of hay oftentimes contains as much nutritious matter as 1½ cwt. when the grass is cut later; and this is a very important matter, because small animals can only eat a limited quantity, it should therefore contain the greatest possible amount of nutrition. All kinds of green fodder crops this year are not only late but deficient in plant, and will yield but a poor crop for sheep and cattle, and it is just such seasons as this which show how valuable mangolds are; in fact it is astonishing that more of these roots are not grown, but we do not find they have increased in cultivation much for several years. The dairy cows will be all lying out in the pastures at night time during the remainder of the summer months, but in case the grass runs short they should get a bait of green fodder in the racks at milking time, and also some linseed cake and cotton cake mixed; this will not only increase the milk, but improve the grazing land.

POULTRY SHOWS IN THE COMING SEASON.

At the risk of being accused of harping continually on one string we recur to a subject on which we have written often and much—viz., the multiplicity of poultry shows. There is no use in waiting till all the fixtures for the coming season are made and advertised, and then crying out, "What a pity that so many shows are held and clash with one another!" If any committees of shows which have hitherto been failures are wavering about the repetition of the attempt, or if others are thinking of making one without good guarantees of its success, we would gladly use any influence we may have to point out under what conditions a show is likely to be useful and successful, and under what conditions one had better not be undertaken.

We hear so continually of shows being financially serious failures, and of many others being only kept up by the excessive liberality of a few local fanciers and exhibitors, that outsiders may well wonder why the exhibitions should be kept up at all. There are still, however, many which pay their way, and others which do much good, though they require to be subsidised; we will therefore briefly give our ideas upon the use and abuse of poultry shows. It will not be amiss to look for it a little into their origin. In the early days of interest in poultry breeding—the days of the mania, as it was called—the major part of the world had never seen many of the pure breeds of poultry, specially the then newly imported Asiatics, which attracted so much attention, and came in crowds wherever they were to be seen. Many, too, fresh in the enthusiasm, gave long prices for Cochins and other novelties. The expenses of each show were thus easily covered by the multitude who paid at the doors and by the per-centage on the costly purchases. This state of things has long passed away. Although, as we have good reason to believe, the number of actual fanciers and breeders is continually increasing, the ephemeral excitement on the subject has quieted down. Save in special districts where fanciers abound, or where poultry are tacked on to exhibitions of many other things, the visitors are not sufficiently numerous for the entry money anything like to cover the expenses of a well-appointed show. If both ends are to meet the promoters must fall back upon heavy (far too heavy they are and ever increasing) entry fees for the exhibits and upon private subscriptions.

It is very natural that as soon as people take a keen interest in any pursuit they should wish to compare notes with their neighbours of kindred tastes as to their success in it. In neighbourhoods where some real interest is taken in poultry breeding nothing can be better than such annual meetings for friendly rivalry. Those who through the year have spent much time on their favourites probably reap the reward of their care; those who have birds of mediocrity see good birds and try to improve their stock; often those who have none buy some. We should like in every district to see local shows with special prizes for cottagers, just as there are classes for cottagers' flowers and vegetables. We have known great good arise from such even when their beginnings were very small and the prizes almost nominal. Probably some enthusiastic amateur comes down to judge, and from a fancier's point of view finds it extremely difficult to make the awards, so peculiar are the matchings and markings of the exhibits; but he generally looks to the probable utility of the birds, and then gives the owners many hints upon their management, which are not lost. Local shows, we maintain, are of real value, as teaching and encouraging a much-neglected branch of national production. The area eligible for them may range from that of a few neighbouring parishes up to a whole county or even a group of adjacent counties. There will still be a large body of great fanciers who, from the attention or the money that they can give to their hobby, or from their exceptional opportunities for riding it distance all other competitors in their several districts, and are only content to meet each other in more public and more frequented arenas. For such there should be large open shows at great national centres, where the greatest breeders from the whole kingdom can send their best specimens and where all the world can see them. From time to time those who have learned the worth of their stock at their local exhibitions and have there won their first laurels will pass into the number of these greater fanciers.

This would be our ideal state of things as to the exhibition of poultry. On the other hand let us see what the present state of things is. These general open shows, which from the nature of things should be few, are very many. In many a country town, where the local show flourished and did good, committees have simply spoilt it by throwing it open to all the kingdom under the mistaken notion that fame and importance thus accrue to it and to their town. A class of exhibitors has grown up—fanciers they are not—who buy fine birds as a regular commercial speculation, and hurry them about from show to show till they are sick and worn out. Often people of means and influence in their neighbourhood begin by subscribing to the funds of the show, and then, learning that the prize board has been swept by a few professional exhibitors, cease to do so; while young fanciers, whose hearts would be gladdened by a modest high commendation if the show were confined to a district, are entirely frightened away and disheartened by the winnings of these great guns. This is no fancy picture; we have in mind several places where such has been the course of things. We do not say that there are not many small towns where there may well be shows with both local and open classes, or open shows with special classes for local exhibitors and cottagers. We have not forgotten the great success which attended such a show last autumn at Hemel Hempstead; yet that show had peculiar advantages—viz., it was well managed, and that by those who had the talent of being able to arouse public interest in the undertaking, and of being the first thing of the kind (a rare occurrence in these days) held in the neighbourhood. What we wish to urge is, that those who care to encourage poultry breeding will do best in the first instance to promote local contests, and will generally be doing good with their money by subsidising them.

On the other hand the indiscriminate promotion of great open shows is productive of much harm. We consider the present time opportune for stating our views on the subject. Fixtures for the summer months are being made, and in many a district subscriptions towards poultry shows are being solicited. It is well that those who are not conversant with such matters should know when and where to give, and the probable effect of their donations. Our advice is, Do not give without thought just because you are asked by some excellent enthusiastic people, or under the idea that your country town ought to have its open show simply because the next town has one. The circumstances of a district must be considered. If there is a really large number of intelligent breeders who wish to see the stock of the great fanciers, and are likely to recruit their yards by fresh purchases, and if the said breeders with the aid of entrance money and entry fees are able to pay for such an amusement, then by all means promote an open show, provided only that there are no others in the same district about the same time. If there are, it is sheer waste of money for hundreds of birds to be conveyed twice over from distant parts of the country often to their detriment, to have all the double putting-up of pens and arranging of halls, when one exhibition would serve all useful purposes. If such previous calculations were made large eliminations would take place from the list of forthcoming shows published in our columns and those of our contemporaries, and we should not hear of so many birds being injured by overshowing.

In most pursuits from time to time it is well to look back at their origin and on to their ultimate end. The end of poultry shows, unless we much mistake it, is the encouragement of poultry breeding and the improvement of poultry, and not merely the amusement of a certain number of fanciers. This should specially be remembered this season when early chickens are so few. If many shows are held these few will in all probability do duty over and over again to their great detriment. In the many places where there is found to be no certain promise of the success of an open show be content with a local one. The expenses of arrangement are less costly, there is scarcely anything to be paid for carriage of birds, and consequently successful exhibitors are content with and repaid by very small prizes, and the exhibits if penned in the morning and taken home the same night do not suffer at all. Our advice, then, in very few words is, Have more local shows and fewer open exhibitions.—C.

BRIGHTON POULTRY AND PIGEON SHOW.

Some years have elapsed since a poultry show was held in Brighton. A southern county like Sussex ought not to be behindhand in poultry breeding, so we were glad to see that another attempt was to be made at Brighton. The time of year chosen struck us as not being very fortunate; the result, however, quite falsified our expectations, for the Show was an excellent one, in fact we never before saw anything at all like it in or near summer time. "It is an ill wind that blows nobody any good," and so the long spell of east winds which has been so disastrous to chickens seems to have kept the old birds in unwonted good plumage. Very few were, as they generally are by the end of May, ragged. The Corn Exchange in the Pavilion is a magnificent place for a show and would easily accommodate twice the number of entries there were—viz., seven hundred. The Show opened at noon on Saturday, and continued open through Monday and Tuesday. A very good number of visitors were there.

Dorkings do not stand the approach of summer so well as some poultry; their feathers are brittle and they soon look rough. In the first-prize Dark pen were a grand old pair, the cock with immense comb; the second cock was good in condition and shape; the third pen very nearly equal to the second. In the other class fair Whites were first; in the second pen was a Silver cock, exquisite in colour and condition, and only spoilt by one blemish, a lot of white in his tail.

Brahmas.—Dark Brahma cocks were poor; by far the best birds arrived too late for competition. A beautifully pencilled hen perfectly free from brown was first, and good birds in the other two places. Light Brahma cocks were about the best class in the Show. First-and-cup was as grand and massive a bird as we have ever seen, a little dirty; second his equal in most points, but not so deep; third a fine-bodied bird much tanned by sun. We heard that these three birds had lately occupied exactly the same places under another judge. Light Brahma hens were a good class, the winners all fine with little to choose between them, and all in good condition.

Cochins.—Buffs were for the season a marvellous class. First very short on legs, the cock of rich and even colour with splendid leg-feathering, yet not a suspicion of stiff hocks; second and third more Yellow cocks, beautiful in colour and both well matched. We believe the third is a cock to which we gave the palm in Paris last year, though he was then placed by the Jury behind an inferior French bird. In the other Cochin class Whites took all the prizes, and the cup for the best pen of Dorkings or Cochins went to the first Whites. The first hen and the second cock were the two best birds in the class, and would together be an almost invincible pair. Mr. Darby's third pair were good; we heard that all the third-prize White cocks had been bred in his yards. Among the highly commended were a good pair of Partridge, the cock very dark in comb, and a pair of Blacks, the cock of which had a tail which would please a Langshan fancier. After these classes there was a falling-off.

Game.—The three prize pens in the first class were all Brown Reds, the cup pair very stylish; in the other class fair Piles were first and second.

Hamburghs were poor; the cup went to a fair pen of Blacks. The winners in the Pencilled were all Golden; the third hen struck us as the best bird but badly marked. Fair Silvers came in first in the Spangled class.

Spanish, Minorca, or *Andalusians.*—First were Spanish, the cock very good in quality of face; second Spanish, large but coarser in face; third Minorcas. *Leghorns* were poor. *Polish* good. The cup went to a beautiful pair of White-crested Blacks; second Silvers, third Golden. *Houdans* looked ragged. First easily ahead; we fancy they are some of Mr. Wallace's stock.

Bantams were good. Cup went to a pair of Black Reds, little gems; second in the same class were stylish Brown Reds, and third again Black Reds. The first pair of Piles in the next class were nice. The Any other variety Bantam class contained several pretty pens. Black and White Japanese were first, Black Rose-combed second, and Cuckoo third.

Crèves.—Only one pair, fair birds, appeared. We suppose the Langshans were good because they were so ugly; the Judge seemed to go in for condition and gloss of plumage. Any other variety.—A lovely pair of Silkies were first, good Cuckoo Dorkings second, and Scotch Greys third. A class followed for pairs of hens of any variety. Dark Dorkings were first, Golden-pencilled Hamburghs second, Brown-Red Game third, and a neat pair of "Courtes-pattes" extra third.

Geese had but one prize; the class was a splendid one of eight Toulouse, four at least of which deserve prizes.

There was little remarkable in the Selling classes beyond a first-prize pair of Black Cochins worth five times their price.

Ducks were poor. The best pens were the first Rouens, the first Pekins, and the pen of Aylesburys which had the Selling class to themselves. A fine pair of Rouens were by mistake entered in the wrong class.

Pigeons.—In spite of the bad time of year some two hundred Pigeons appeared Mr. Baker of Kew was the chief winner. In *Pouters* his two first-prize birds were capital Blacks, the cock also took the cup. His three winning Carrier cocks, all Blacks. First peculiarly fine in eye wattle. In hens a Dun came in first. *Pigmy Pouters* were a large and pretty class. Mr. Gibson's first little White is a gem; his Blue is shorter on the leg, but capital in marking. The first *Barb*, a Red, has such a frog head as is seldom seen. In *Dragoons* Mr. Wood took his usual place—a Blue of his small pretty type first, a larger rich Red second. *Jacobins.*—The first Red from a little known exhibitor astonished the Judges; it is extremely good and close in hood and honestly shown. *Fantails.*—The winners all White. First good in both tail and carriage, second a little toppling Scotch bird, thurd a nice round-tailed hen. *Turbits.*—A lovely Blue first, a good Black second, and a Shell Black third. *Owls.*—The winners good. First a Blue, second a powdered Blue, third a Silver slightly powdered. *Foreign Owls.*—The winners all White. *Archangels.*—All the winners rich and dark. The two *Trumpeters* were both fine Mottles. *Antwerps* had four classes for every variety of face. *Any other Variety.*—First a splendid Black Turbiteen, second a Blue Frillback, third an Ice Pigeon.

The Judges were, for *Poultry*, Mr. O. E. Cresswell; for *Pigeons* generally, Mr. R. Fulton; and for *Homing Pigeons*, Mr. A. Cruttenden.

CANARY TREATMENT.—No. 5.

As to the kinds of Canaries to breed much depends upon one's taste. Some prefer the stylish-looking Belgians, which are not only the most expensive birds but incur more trouble in breeding and rearing of the young broods. Others make choice of the massive Coppys and Plain Heads, the latter breed being a counterpart of the former, excepting the crested head. These breeds are mostly cultivated in Lancashire, and are longer and larger throughout than any other Canary. Yorkshire birds have more attention paid them in the propagating of their tribe in the locality so designated, and it is surprising that the breed, which is somewhat aristocratic in appearance, has not become more general. Those kinds in most request throughout England are the Norwich and Lizard birds, the former especially. They are not only rich in colour, of a silky plumage, robust, and very compact in form, but of good constitution. Being of a somewhat hardy nature they breed freely, and with proper attention bring forth their young plentifully.

One advantage in the breeding of Norwich birds is, that the parent birds (although they apparently appear clear or free from dark feathers), do not bring forth all the young ones clear owing to the strain of variegation in the blood. Many of the young birds are marked either more or less on some part of their plumage—no disadvantage to those fond of exhibiting birds at shows. If clear and clear be matched continually together the birds eventually become too pale, therefore it is essential to cross with clear those of the variegated plumage. The chances may be that in so crossing, young birds may be bred possessing evenness of markings on the wings and each side of the head. Such if nicely pencilled are looked upon with some degree of favour, and often realise for their owners considerable sums—as much as £5 or £10 each. There is much uncertainty in producing even-marked birds, and however well marked the parent birds may be you cannot depend upon the offsprings being equally well marked. I have known instances of very even-marked birds having been bred from parents one of which was almost entirely green or dark, and the other of clear plumage. By pairing together a couple of heavily variegated Norwich birds the chances are that some of the young ones will be entirely dark and self-coloured. In fact that is how I used to breed my Green Norwich birds, and I have had a few good ones in my time.

In my earlier days of Norwich breeding, having obtained a splendid yellow Norwich cock for breeding with from old Mr. Mackley, the father of the present noted exhibitors, I happened to find the bird was a marked one. I wrote him concerning the bird, and he replied, "It's all the better for breeding with; it's one of my one-to-threes," which inferred that one of the bird's parents had one cross of variegation in its blood, matched to

another from three times crossed-in with clear stock. He further said, "You can't do any good without crossing-in with variegation for green is the foundation of deep yellow." This I have tested to my advantage, and have proved beyond doubt that whenever I have had a marked bird amongst the young stock that bird will invariably show more colour than clear birds from the same parents. In Canary breeding you may (as they term it in Derbyshire) "work" several breeds at the same time if you possess plenty of convenience in the way of a good stock of fronts fixed in the corner of a room, having also a fly to deposit the young stock in, or better still an open room to turn the broods in one after the other as they get on to a seed diet.

London Fancy birds, which should be managed in cages, are not only very expensive, scarce, and somewhat difficult to lay hold of, but they require a considerable amount of attention, expense, proper moulting besides breeding cages to thoroughly manipulate them in before bringing them out to perfection; notwithstanding this I never felt satisfied until surmounting the little obstacles, and exhibiting Fancy birds of my own moulting against some of the best exhibitors of the London school.—GEO. J. BARNESBY.

VARIETIES.

WE have received Messrs. J. Baily & Son's descriptive catalogue of fowls, Pigeons, Ducks, Geese, Turkeys, Pheasants and ornamental and foreign birds, which is worthy of perusal by intending purchasers of the useful and beautiful birds, for which Messrs. Baily are famed raisers and introducers. The relative qualities of the various breeds of poultry, &c., are concisely stated, and their points of interest briefly and clearly indicated in this sober and business-like catalogue.

—— RELATIVE to the cultivation of lucerne on page 338 the writer further observes:—There are many cases where lucerne would pay well for cultivating in orchards, particularly cider orchards, for it must be admitted that all fruit orchards pay best having the soil cultivated under them. Let us take for instance an orchard with turf surface. It often gives a poor return in grass, but let it be pared over and the turf burned into ashes, the ashes spread, the land forked over, and, after being worked fine, sow lucerne with the hand drill at 12 inches as before named. This will not only greatly benefit the fruit trees, but lucerne is a crop that will bear shading better than almost any other if the land is dry. When the lucerne is cultivated by horse or hand-hoeing between the rows, it will not only pay for so doing but will keep the fruit trees in a prosperous and fruit-bearing condition. No home farm should be without a plot of lucerne in proportion to the size of the occupation, and we feel assured that no person who has laid down a piece properly will ever again wish to be without it.

—— THE following experiments with manures are recorded in the *Irish Farmers' Gazette*:—Some time ago we drew attention to certain experiments undertaken by the Aberdeenshire Agricultural Association, under the superintendence of Mr. Thos. Jamieson, an able and well-known agricultural chemist, the object of the experiments being to ascertain the relative manurial values of different forms of phosphate and nitrogen as evinced in the production of crops of yellow and Swede turnips. These experiments have been conducted continuously for three years, as it was found that several years' investigation was required in order to insure accuracy, to ascertain future effects, and secure results of different seasons. As we formerly stated, the inferences from the first eighteen experiments conducted in 1876—performed ten times in the same year, in five different soils and localities, making in all 180 experiments—were: 1, That phosphates of lime decidedly increase the turnip crop, but that farmers need not trouble themselves to know whether the phosphates are of animal or of mineral origin. 2, That soluble phosphate is not superior to insoluble phosphate to the extent that is generally supposed. 3, That nitrogenous manures have little effect on turnips used alone, but when used along with insoluble phosphates increase the crop; that the addition of nitrogenous to soluble phosphates does not seem to increase the solids or dry matter in crop; that there is no material difference between the effects of equal quantities of nitrogen in nitrate of soda and in sulphate of ammonia. 4, That fineness of division seems nearly as effective in assisting the braird and increasing the crop as the addition of nitrogenous manures. Hence the most economical phosphate manure for turnips is probably insoluble phosphate of lime, from any source, ground down to impalpable powder.

MODERN BEE MANAGEMENT.—No. 11.

THE ART OF WORKING SECTIONS.

A SECTION of honeycomb when properly finished should have the following points, as judges would say. The case should be spotlessly clean and of agreeable proportions; the honeycomb should be of purest colour and richest flavour. Every cell must be sealed; there should be no passages left between the comb and the frame, and no row of empty cells, and the finish should be so straight and so well kept within the outline of the case that it can be covered in a simple manner with glass on both sides so as to secure the comb from damp, dust, or vermin, without bruising a cell. Considerable art on the part of the bee-keeper is necessary to insure such results. Having worked with sections for the past three years, and probably marketed more of them than any bee-keeper in Britain, I believe that some account of my method may be welcome to the readers of the Journal, and all the more that all our apiarian societies are this year offering prizes for the best finished sections. My remarks will be understood as applying only to the form of section illustrated on page 146, having 2-inch ends and 1¾-inch top and bottom bars.

When a number of these sections are placed side by side it will be seen that the bottom bars form a honey board with quarter-inch passages, rendering any other honey board not only unnecessary but positively harmful. These passages must on no account be closed either by setting the sections on a board or on the frames. A free space must be allowed below the sections, else the bees will leave passages in the comb, probably never extending their cells to the bottom bar at all. Fig. 58 shows one method of accomplishing this—viz., by hanging the sections in a frame of the same width as themselves. These frames may be hung either at the ends of the hive proper, or in an upper storey made to suit them, and should not come within three-eighths of an inch or so of the bottom. Shallow frames to hold only one tier of sections might also be fitted up in a shallow box; but it is advisable to have all frames used in an apiary of like dimensions, whether for honey or brood, and so I have my sections made of such a size that four of them fit an ordinary bar-frame, and they can thus be used either in the main hive or in a similar top storey.

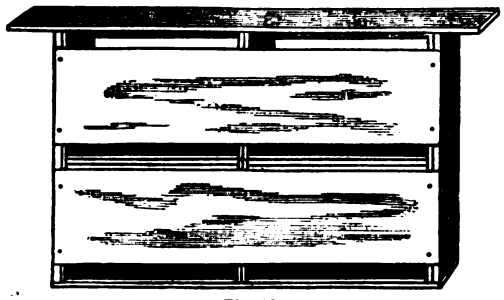


Fig. 58.

As it is well established that bees build comb faster at the sides of the brood frames, but are much longer in sealing the honey, it seems that the best results may be obtained by having all sections started in the lower storey and finished in the upper; and I intend to work several hives on this plan. The main objection to an upper storey is, that it is too large to give the bees all at once. They will usually commence earlier and do more rapid work if only one tier of sections be given them to commence with. Partly worked sections from the frames below may be taken out and placed in the centre of the tier above, and will be a certain inducement to commence work.

I fit up my super proper as in fig. 59. A shallow but bottomless tray of wood is made with ledges to support the ends of the sections and allow travelling space beneath. With such a tray the sections are very easily handled. Full ones can be taken out and empty ones put in their place with almost no trouble. Five quarter-inch laths could be used instead of the tray, one being laid on the frames to support the ends of the sections in the middle, another to support them at each side, and two to close the passages at the ends of the other three. The sections are simply set in their place, the outer ones being closed in with

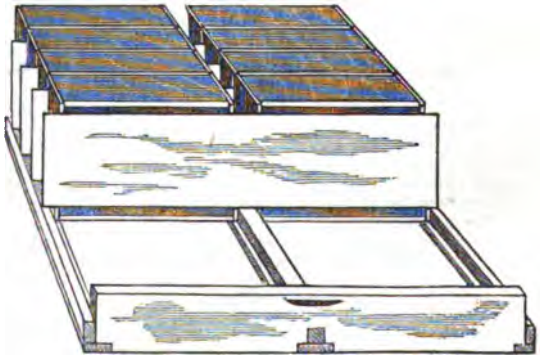


Fig. 59.

glass, and all tied together with a tape; of course a quilt is also necessary to close the upper passages. The tray, however, gives us the advantage of setting or removing the whole tier at once, and when one has to open a strong hive, it may be several times during the season, for the purpose of cutting out royal cells, or perhaps extracting honey from the brood frames, this is no slight advantage.

By either of these methods, and with the use of guides of comb foundation alone, sections of splendid quality and finish will usually be obtained; but if our intention be to procure sections fit for glazing, either for market or exhibition, we must adopt another device—the separator. Its use is to insure a perfectly straight comb that shall be just one-eighth of an inch within the top and bottom bars, on which glass may rest, and be fastened there either by tin points or strips of gummed paper. Glass, wood, pasteboard, and tin have all been used as separators. I prefer tin, as it occupies almost no space between the ends of the sections, and is very seldom attached to the comb. The tin is cut, so that when in position there may be a quarter of an inch clear passage above and below from one section to another. In the frame of sections, fig. 58, the tin is shown as permanently tacked to the frame. In fig. 59 it is shown simply resting on the upper edges of the supporting bars, which are, of course, made of suitable depth for the purpose. With such an arrangement the labour of placing and removing the sections is reduced to a minimum. The only fastening about the super is a slip of wood, which is used between the last of the sections and the end of the case to wedge all together.—WILLIAM RAITT, *Blairgowrie.*

PROSPECTS OF THE YEAR FOR APIARIANS.

FARMERS are proverbially said to be grumblers. The extreme uncertainty of our English climate both occasions and to a certain extent excuses the habit. Nor are bee-farmers exempt from the tendency to complain of their prospects. How it is faring with our bee-keeping friends elsewhere in "the three kingdoms" I know not, but here in the south-west of England, on the 26th of May, the prospect as well as the retrospect is gloomy enough. By dint of constant feeding where any of my stocks were known to be poor I have contrived to keep them alive and to induce them to go on breeding; but I never remember a year when bees were so backward and so impoverished at this advanced season. I really doubt if there is a pound of honey in any of my hives, even in the strongest of them, while the weaker ones (and I have none very weak) are living from hand to mouth. By a kind of instinct (let us hope), but perhaps only from force of habit at this time of year, I have been placing a quantity of sectional supers on the top of several of my stocks, which are pretty full of bees; for "now or never" is the natural thought, as one looks at the orchards and gardens in full bloom, the latter having passed their prime from which our early honey stores are gathered. In another fortnight we shall have reached the dead time which intervenes before our clover harvest commences.

As I am the first croaker in the pages of this Journal I hope it is faring better with my brethren elsewhere.—B. & W.

THE UNFAVOURABLE SEASON.

THE spring months of last year were so unfavourable for bees that we thought then that such a spring had never been experienced in Great Britain. Probably three-fourths of the hives in this part of the country were destroyed by the cold ungenial weather. This spring has been worse for bees than that.

From the beginning of February until this day (May 16th) the weather has been very trying for bees. In February I removed some of the winter covering from my hives and examined them all. They were then in excellent condition and strong in bees, some of the best hives having respectively five, six, and seven seams of bees. I never had better stocks—forty in number, which I valued at 40*s.* each. What are they worth now? Most of them have been saved from extinction, but now they are not worth 15*s.* per hive. They have fewer bees now than they had in February and March. The cold season has kept them from breeding to any extent, and by reason of age the old bees have died faster than young ones have been produced to take their places. Only in hives warmly covered and well fed have bees been kept up to the breeding point during the last three months. In ordinary seasons my best hives are ready to swarm about the middle of May; this year I shall not have a swarm before the end of June, even if the weather become favourable for honey gathering. I have no hesitation in saying that this spring has been on the whole the most unfavourable for bees ever experienced in my time. In other parts of the country it may have been better than it has been here in the north of England.

From Scotland I have had no reports of the state of hives this year. I bought six hives lately in the south of England (Suffolk), which arrived here strong in bees with plenty of sealed brood in them. On arrival they were sold to gentlemen in Sale, whose gardens are near my own. A friend of mine bought some stocks in Dover which arrived about a month ago in good condition. We therefore cherish the hope that we shall hear that bees in the south are in much better condition than they are in the north.

In the vegetable kingdom things have hitherto borne a winterly aspect. Everything is late. Gooseberry bushes are now in flower. The fruit blossoms of plums, cherries, pears, apples, and sycamores so long checked by cold weather are now heralding the coming of a grand display. Every orchard will be bright with flowers, every fruit tree a huge garland of blossoms. Last year we had no sycamore flowers in this locality; this season every tree has abundance. In ordinary seasons gooseberry blossoms are followed by those of plums, cherries, pears, apples, and sycamores, in the order named, but this year's sycamore will be in flower before pears and apples. Weather permitting, bees will shortly have ample fields of rich pasture. A few days of fine weather now would give new life to our bees, and bring into play their powers of increase.

Most of last year's bees have passed away, and hives that have borne the stress and strain of the last few weeks will live and gain strength every day. A few bees in warm weather can nurse and hatch great sheets of brood. When things are at the worst they generally begin to grow better. But while the wind continues in the north little honey can be gathered, and therefore feeding must not be discontinued. Both bees and brood require much food now, and generally speaking those who feed their bees most in bad weather have the largest returns at harvest time.—A. PETTIGREW.

OUR LETTER BOX.

ADDLED EGGS (*N., Enfield*).—It is impossible the eggs could have undergone the process that makes them addled till after they have been laid. Curious things take place with eggs. Some hens lay eggs slightly streaked with blood. Very often the distribution of the yolk and the place it should occupy in the shell vary much. These, however, are generally accidents, and yield readily to purgatives. It is certain that the food influences the taste of the egg. Garlic, onions, malt dust, or anything that smells strongly, will communicate its flavour to the egg if the fowls be fed upon it. You have Brahmas and Dorkings. We should accuse the former of being the culprits, and should imagine the cause to be some objectionable food they find and eat. The Dorkings escape, because as soon as they are at liberty they roam about even to long distances, while the Brahmas remain at home. It can be very easily tested. Let the Brahmas be confined and dosed with castor oil—a good tablespoonful. Keep them in confinement, giving only meal and corn. Try their eggs after three or four days. We believe you will find them good. We presume, of course, that no one wrongly interferes with the eggs.

LIGURIAN BEES.—Anyone having a swarm of these to sell would find a purchaser if he advertised them.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.
Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879.	9 A.M. Barometer at 32° and Sea Level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	IN THE DAY. Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass.	Rain.
¼ May.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 21	30.136	59.0	53.1	W.	50.9	67.4	49.0	109.5	44.0	—
Th. 22	30.143	57.9	52.8	S.	51.4	67.6	47.0	111.9	41.2	.145
Fri. 23	30.139	49.8	45.7	N.	52.1	60.0	43.3	93.7	49.3	.010
Sat. 24	30.221	55.9	50.1	N.	50.3	68.7	41.6	109.8	37.1	.325
Sun. 25	29.858	52.2	51.4	W.	51.8	62.2	49.1	107.9	45.8	.014
Mo. 26	29.832	57.2	50.3	W.	51.3	60.5	42.3	109.6	35.5	.145
Tu. 27	29.630	50.5	49.3	N.E.	51.0	59.4	47.6	99.1	45.5	.305
Means	29.994	54.7	50.4		51.2	63.7	45.8	104.7	41.6	1.005

REMARKS.

21st.—Overcast dull morning; very bright fine afternoon and evening.

22nd.—Rather close warm morning; windy in afternoon and much brighter; cloudy evening.

23rd.—Rather dull and cool day; clear in early part of evening.

24th.—Very bright sunshine in early morning; overcast generally rest of the day.

25th.—Rainy morning; very fine afternoon; beautiful evening; fine starlight night.

26th.—Bright in early morning; overcast with showers at intervals rest of the day.

27th.—Hazy dull morning; few showers during the day, overcast and gloomy.

The air temperature has at last reached its average, but the soil remains cool.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 28.

A DECIDED improvement in trade has set in, and all classes of goods have met with ready sales, prices remaining the same as last week.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples	½ sieve	5	0	to 6	0	Melons	each	10	0	to 15	0
Apricots	box	2	0	3	6	Nectarines	dozen	12	0	24	0
Cherries	box	2	0	3	6	Oranges	⅌ 100	4	0	12	0
Chestnuts	bushel	12	0	16	0	Peaches	dozen	18	0	36	0
Currants	½ sieve	0	0	0	0	Pears, kitchen	dozen	0	0	0	0
Black	½ sieve	0	0	0	0	dessert	dozen	0	0	0	0
Figs	dozen	12	0	18	0	Pine Apples	⅌ lb	2	0	4	0
Filberts	⅌ lb.	0	9	1	0	Plums	½ sieve	0	0	0	0
Cobs	⅌ lb	0	9	1	0	Raspberries	⅌ lb.	0	0	0	0
Gooseberries	quart	0	6	1	0	Strawberries	⅌ lb.	4	0	10	0
Grapes, hothouse	⅌ lb	3	0	8	0	Walnuts	bushel	0	0	0	0
Lemons	⅌ 100	4	0	8	0	ditto	⅌ 100	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 5—11, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age Days.	Clock after Sun. m. s.	Day of Year.
5	TH	Linnean Society at 8 P.M. West of England Pansy [Society—Exhibition at Exeter.	70.5	47.3	58.9	3 48	8 9	9 a 48	3 58	15	1 50	156
6	F		69.9	47.6	58.8	3 47	8 10	10 30	5 12	16	1 40	157
7	S	Jungermann died, 1653.	69.3	46.5	57.9	3 47	8 10	10 59	6 33	17	1 29	158
8	SUN	TRINITY SUNDAY.	70.6	46.4	58.5	3 46	8 11	11 21	7 56	18	1 18	159
9	M		70.8	47.2	59.0	3 46	8 12	11 38	9 15	19	1 6	160
10	TU	Royal Horticultural Society.	69.6	46.9	58.3	3 46	8 13	11 52	10 31	20	0 55	161
11	W	Guildford and West Surrey Horticultural Society's [Annual Exhibition.	72.1	47.6	59.9	3 46	8 14	morn.	11 43	☾	0 43	162

From observations taken near London during forty-three years, the average day temperature of the week is 70.4°; and its night temperature 47.1°.

THE APPLE AND THE PARADISE STOCK.

IN the account of the Paradise stocks grown at Chiswick your correspondent omits to notice the quality of the soil in which the stocks are growing, and also the number of plants of the different sorts of stocks grown. It is not easy to form an opinion of stocks from a few specimens, or to form an opinion of the fruit-producing qualities of a stock from its aptitude for fruit-bearing in itself; it does not always follow that a stock which is fruitful one year and sterile in a succeeding year is on that account incapable of developing the fruitful qualities of the sort which is grafted upon it.

The property of the Paradise stock in exciting early fruitfulness upon the graft is undoubted, but upon its own roots, as it is generally reared, the Paradise stock and its congeners are exceedingly slow in fruit-producing. I have had fourteen so-called different varieties of the Paradise stock here growing for ten years without producing a single bloom. Last year, as I could see no interest whatever in most of these varieties, I destroyed the plantation; all of these stocks when grafted would during this term of years have probably exercised sufficient influence upon the stock to have produced fruit if the season allowed eight crops of fruit, as the graft generally begins to bear in this soil two years after grafting. From this fact I gather that the Paradise in itself is not a specially fertile tree when grown from cuttings. On the other hand, an Apple named Bide's Apple, or Bide's Walking-stick, will strike root from truncheons and begin to bear fruit within two years after planting; although singularly fertile, it is useless as a stock from its tendency to canker.

Your correspondent enumerates several kinds of Paradise Apple, of which I presume a few specimens only are grown at Chiswick. Some of the kinds which he names have been grown here in thousands, and it is not difficult to detect the peculiarities of each stock when cultivated on a large scale. The three principal sorts of which I have the most knowledge are the Doucin, Rivers's Nonsuch, and Rivers's Broad-leaved. There is little difference in the vigour and productive qualities of the Broad-leaved and Doucin; they are much alike, but the Doucin does not form roots with the same facility as the Broad-leaved, and has the property of sending out one long root devoid of fibres, which renders the tree quite worthless as a marketable variety, and in a garden causes the graft to grow with a vigorous and fruitless habit. To induce fruit-bearing this root should be divided, but as the evil is not often discovered until too late the severance of the root will cause injury. The Broad-leaved, equally robust, has not this peculiarity, and I have found it an excellent stock for all sorts of which an abundant supply of fruit is required; and where there is room to give the trees more space than necessary for very dwarf trees, I use this sort for culinary sorts, such as Dumelow's Seedling, Keswick Codlin, and the like.

The Nonsuch Paradise is a sort which is as fertile and as dwarf, but more hardy and vigorous than the French Paradise; it produces tufts of fibrous roots from every bud below the ground, and it appears to be quite indifferent as to whether it will produce leaves or roots; as a consequence the stock is the best that can be used for dwarf trees, as it will bear removal at almost any age, the roots being a network of fibres. The fruit produced by this stock is always remarkably fine and brilliantly coloured owing to the facility with which the numerous rootlets extract their nutriment from the soil. For dessert Apples, such as Cox's Orange, Ribston, Melon Apple, Allen's Everlasting, Lord Burghley and the like, I have found it give the best results.

The French Paradise is too tender and delicate to be used generally, and I think that in most cases if fruit can be produced without much trouble few persons would hesitate to employ the means for so doing.

The Dutch Paradise is probably good for the purpose of growing and selling stocks, but useless for the garden, as it is as great a pest as the Elm, the suckers from the roots rising on all sides.

Of the other sorts which were under study the Miniature and Pigmy were good stocks, but in no way better than the Nonsuch. The remaining sorts I have rooted up as being valueless.

I have now under trial seedlings raised from the Pyrus floribunda, and I have hopes that this will prove a very valuable dwarfing stock. The tree is well known as a lawn tree, and it is certainly one of the prettiest ornamental trees we have, the brilliant red flowers having all the effect of a Fuchsia, and being as thickly studded as a May tree in full bearing. It does not grow into a larger tree than the Whitethorn, and I have therefore reason to think that it will form a dwarf and fertile stock.

Some years since I grafted the Blenheim Orange—a notoriously unfruitful variety while young—on the Keswick Codlin. The stock has evidently exercised great influence, as the bush of this unfruitful sort is now covered with blossom and presents an appearance which I have seldom seen with this variety.

The question of stocks is very important, as success with garden-tree culture depends very much upon the stock, and too much attention cannot be given to this subject by the fruit-tree grower.—T. FRANCIS RIVERS, *Sawbridgeworth.*

SHADING PLANT HOUSES.

THE successful cultivation of plants depends more or less upon watering, potting, &c., and not the least important point is shading. There exists a variety of opinions whether some plants thrive best if grown without being shaded, or whether shade applied in some form is necessary to their well-being. We venture to say that shading cannot be dispensed with entirely, and it would be unreasonable to suppose it could when we consider the shade many occupants of our plant houses enjoy in their native homes. While good results attend the use of shading for many plants in various stages of development, there are on the other hand evil results. We have seen in the early part of the season, when at times the sun is very hot, shading materials applied

to the glass to remain there until the end of the season. This we call shading with a vengeance, when in seasons like the present shade is only required for a few hours during the day, or even during the week. We approve of early shading, which we carry out as far as necessary, and with beneficial results to the plants. When a number of plants have undergone the ordeal of potting, however carefully this operation is performed, it is impossible to avoid damaging the roots to some extent. On bright days the blinds are drawn down instead of ventilating, until the plants have recovered from potting and have rooted freely in the new soil.

Where houses contain a mixed collection of plants it is the more necessary that the shading should not be of a permanent character, but such as can be drawn down for a few hours and kept up during sunless weather. The blinds should be drawn up early in the afternoon, allowing the occupants of the house all the light possible, which is very important in the successful management of a general collection of plants. There are a few shade-loving plants that could not endure strong light; these may be accommodated by placing them in a shady portion of the house. Great injury is done by permanently shading the glass, especially in the spring and autumn months, when for days the plants are almost in darkness, causing them to grow weakly, and such plants for decorative purposes will not bear comparison with those grown under the influence of abundant light and sunshine.

We would before the season is far advanced recommend the shading employed to be as light as possible, and only to be used when absolutely necessary. It is, we are aware, very difficult to shade all plant houses with tiffany and rollers attached, because in some structures appearance only is studied outside instead of the houses being adapted to the requirements of the plants. Where fixed shading is employed it should be as light as possible, and must not be placed on too early in the spring, and should be gradually removed in early autumn, except in the case of Ferns, which will thrive under heavier shading than most plants. Even with these we prefer moveable shading so as to allow the plants all the light possible, and yet shading them when the sun is bright. Ferns, especially those grown for decoration and cutting, must have abundance of light, otherwise they are useless for the purpose.

We not only see permanent shading used largely on houses where it would be difficult to use blinds, but on others where blinds could be employed, the latter system allowing the plants to solidify their growth, and this is of primary importance where flowering and foliage plants are grown in the same house. To produce flowers up to the standard of excellence they must have abundance of light. On the other system when plants are drawn up weakly they cannot produce flowers in great profusion, and have not full size and substance in their blooms. Plants should be prepared in early autumn to stand as much sun and light as possible, and the wood being thoroughly ripened they will pass through the winter safely and rest much better than those drawn up in semi-darkness.—W. BARDNEY.

ROSES IN 1860 AND 1878.

ONE of your correspondents is anxious for a comparison between the relative destruction of Roses in 1860–61 and in the past winter. It is curious how very partial the damage done this year appears to have been, and this quite irrespective of latitude. I live one hundred miles N.N.E. of London, probably, therefore, 120 miles north of "WYLD SAVAGE," and my Roses have suffered nothing compared with his. I calculate my loss in standard H.P. at less than 10 per cent.; in Teas say 50 per cent. In 1861 my loss was rather more than less than 90 per cent. In 1871, 70 or 80 per cent. In the two latter years the thermometer was on one more occasion below zero, in the last year never lower than + 5°. Soil a strong clay, garden well sheltered by beech fences. But besides standards I have lost in the last two months a good many new buds on seedling Briars. They were alive in March, but have since decayed from a superabundance of moisture in the mulching material. My Roses generally are not breaking as strongly as usual.—DUCKWING.

IN reference to the inquiry as to the relative severity of the winters of 1860–1 and 1878–79, and their effect on Roses, there is no doubt whatever that the former period of frost had a much more disastrous effect in gardens in Lincolnshire than the latter period had. In the spring of 1861 ninety-nine standard Roses out of a hundred were killed in the district of my observations; this year perhaps about ten out of a hundred (I allude to Hybrid Perpetuals), have succumbed, and about the same number are injured, the remainder growing quite healthily but rather slowly, and the Rose season will be a late and possibly a short one, as it is not unlikely that hot sunny weather will occur in July. It has been observed in previous years by those who have relatives in Australia, and who have sent notes of the weather there, that a dry burning season at the Antipodes is often followed by a summer of a similar nature here. In 1860–1 Peach trees and evergreens were killed, scarcely any escaping; last winter the injury in fruit gardens and shrubberies was comparatively trifling. In the year of destruction alluded to the thermometer registered 7° below zero. In 1878–79 the lowest point reached in the same garden was 4° on the scale, or 28° of frost.—J. C., *North Lincoln.*

TRAINING GRAPE VINES.

I QUITE agree with Mr. Luckhurst in his remarks respecting the training of Grape Vines. I have for the last two seasons adopted in a modified form the method recommended, having been convinced for a long time that if good Grapes are desired the surest way to obtain them, other things being in accordance, is to allow plenty of foliage, and well expose that foliage to the action of the sun and air. I think I mentioned in these columns some two years ago that a Vine which was continually pinched and cramped for space was at last allowed to grow freely; the result was a magnificent shoot nearly 40 feet long, which was cut back to one-third of its length the following winter, and produced a bunch of Grapes from every eye.

I have this year an exemplification of the advantage of allowing plenty of foliage. A Vine at the west end of a vinery which had been forced early every season for at least thirty years was allowed last year to make what wood it could. The laterals grew strongly, hanging down against the end windows, and growing out of the top of the house, where the lights were kept open night and day after the Grapes were ripe. This season the number of breaks on the three rods are 314. Three of the rods are at least twenty years old. A young one has been brought up by degrees, and is about three-quarters the length of the old one. They have been pruned on the close spur system, and last year the Vine in question produced about 40 lbs. of good Grapes. This year I have removed over fifty bunches, and must further reduce them, or shall be afflicted with that disease called the gardener's greed. Many shoots produced from the old wood show fair-sized bunches, and altogether they are very satisfactory. In another house last year, and the year before, I allowed the two varieties, Mrs. Pince and Lady Downe's, to grow without restraint, and I am rewarded with a better crop and finer bunches than I have hitherto had. I may add that I always water the borders well which are outside, and mulch after the final soaking, but never dig the borders, as my opinion is that if you wish to keep the roots near the surface the border should never be disturbed. I have observed Grapes do well where the roots have been under a broad gravel path, and when the Box edging was replanted the roots of the Vines had formed a network on the gravel.

I believe if more attention was paid to watering and mulching the borders, combined with abundance of foliage, much better Grapes would be grown, and we should hear less of the roots getting down into the subsoil, and last, not least, see very few shanked berries. One of the reasons why Grape Vines do not have foliage enough allowed them is that they are planted too closely together, in many instances not more than 2 feet 6 inches or 3 feet apart, when to allow them to fully develope they should not be less than 4 feet apart: this would admit of the laterals making shoots, as Mr. Luckhurst suggests, at an angle of 45°, and about 2 feet 9 inches long, and would produce fruit far superior in size and appearance from many which are frequently seen.—JOHN GADD, *Thorndon Park.*

RICHARDIA (CALLA) ÆTHIOPICA.

NO one can dispute the usefulness of the above plant for decorative purposes, especially for the embellishment of rooms where large plants can be employed. Where this plant has to be increased considerably from suckers, especially if very small, they should be potted in small pots, and when well established and hardened off they had better be planted out in trenches. These young plants require no rest, but should be lifted early in September and be placed in the shade outside until root-

action has again commenced; they must be taken inside when frost makes its appearance, and will then produce flowers by Christmas. While we agree with Mr. Abbey that the Calla enjoys rest, we do not uphold the drying-off system; this we consider unnatural to such a moisture-loving plant. We liberally supply our plants with water in all stages, and allow the plants to rest naturally, and thus treated they have flowered most satisfactorily for the past six months, and would have produced numbers of spathes for some time to come had we not wished to increase the stock, which we have done by dividing the plants. They are now planted out where they will receive a natural rest, and at the same time liberal applications of water when required. Our object in having a larger stock of plants is for the sole reason of producing their ever-welcome spathes over a period of nine months instead of six, which could only be the case with a limited stock of plants.—W. BARDNEY.

EFFECTS OF LAST WINTER.

I HAVE taken careful notes of all the herbaceous plants "D., *Deal*," recommends, and shall in due course purchase them. I am surprised at the extent of "D., *Deal's*," garden, and at the number of flowers that he cultivates. His notes appear to me to embrace every kind of flower from the tiniest Campanula to the most gigantic Pæony or Lily. Florists' flowers of every kind, Roses, herbaceous plants, Chrysanthemums, and all kinds of vegetables are all grown. I thought I had a large garden, but mine can evidently bear no comparison with his.

A lady has also given me a few notes upon Lilies. She advises me to grow these beautiful bulbs among American plants. I regret to say that I have not yet done this, but have tried to grow them in a bed entirely to themselves. The consequence is the late winter has killed more than half of them; or as this may not convey much to her mind, I may add that I have lost Lilies to the value of £5, and yet I took the greatest care and went to great expense to make a good bed. I excavated to a depth of 4 feet, put 1 foot of stones at the bottom, and made a compost of the richest materials that I could obtain. The one thing I did not use was peat, but this I could not obtain except by sending to Woking or Christchurch, or the Quantock Hills. Black bog I can obtain from a neighbouring wood, but the noble owner assures me he has tried it and found it useless.

I am afraid you will be tired of printing records of the past winter's severity. The death roll here has been indeed great, and, if you care to print it, I give a list of the Lilies that have succumbed. Whether they are more delicate than those that have survived I do not know, but I imagine not. *Isoliron Group*—Davuricum, D. Don Juan, D. erectum; Bulbiferum, B. umbellatum; Thunbergianum, T. alutaceum, T. armeniacum, T. atrosanguineum, T. fulgens. *Euliron Group*—Longiflorum, L. eximium. *Martagon Group*—Carniolicum, C. flore-pleno; Pomponicum. *Archeliron Group*—Speciosum, S. fasciatum, S. roseum verum, and multiflorum; Tigrinum, T. sinense, T. Fortunei, T. Fortunei flore-pleno, T. splendens.

Besides these I have lost a collection of herbaceous plants far too numerous to mention, but quite as valuable as the Lilies. Such is my death roll. I say nothing about my Roses, for I would far rather not speak of them. The Passion-Flower against the church is so dreadfully cut and injured that I fear it is killed. We are now in the last week of May, and not a leaf has appeared. During this bitter month we have only had one genial day, and not a single warm night. Such early Roses as Solfaterre and La Marque on a warm south wall and planted against a chimney where the fire has only been extinguished for a few hours for the last ten months, these have not yet bloomed, and the buds are only just beginning to swell.

Before these lines are in print the great societies will have held their shows, and I wonder how many Roses will be seen at the Palace or South Kensington. The Bath and West of England Show this year is held at Exeter, and I should above all things like to help my friend Mr. Boscawen, but I have nothing to show. Up to this time the only Irises that have bloomed are I. reticulata, I. persica, I. lutescens, and I. cristata. The weather this week is so wet and cold that I have no hope of any more blooming. If it were not for Auricula (Alpine), Polyanthus and Violas, I should not have a bloom in the garden.

On the other hand, I never saw such abundant and beautiful blossom on the fruit trees. The Apples are a perfect picture, covered with their pink and white blossoms; whenever there is a transient gleam of sunlight they appear to be covered with silver. But this is the only silver lining I can find in the dark cloud which hovers over horticulture, and if there is not a rapid change in the weather our Rose Show at the Palace will be a disastrous failure.—WYLD SAVAGE.

HARDY AQUATIC PLANTS.

"Come seek the Lily's calm haunts, and see
The waters sporting round their pearly cups.
If ye e'er gazed on aught more beautiful,
Oh tell me what it was, for ne'er have I."

So sang the poet of that Naiad of the river the white Water Lily (Nymphæa alba), which is, and always will be, a prime favourite among aquatic plants—the first plant found by collectors, and the nucleus of all their subsequent gatherings. Greatly as I admire this Lily, I do not like too much of it. A single plant in a small pond, and two or three patches in a large one, is far better than a dozen square yards of it. To enjoy its full beauty we must not have the roots crowded and half starved. Well-fed roots give large foliage and blossom, around which there should be a broad margin of open water, so that we may see them resting on its bosom and enjoy the full charm of its rippling wavelets playing around the edges in the full brightness of the summer's sun.

The present time is the best to empty ponds—to weed, thin out, and re-arrange the plants. I have lately been doing so, and would advise others to do the same without loss of time, especially if there is any foulness or accumulation of leaves and weeds. Last year complaints were very general of green film, and not a few were puzzled and annoyed with it. It was advised to let off the water and cleanse the plants of it—not an easy matter when you have a couple of feet of mud all over the bottom. I am afraid I must plead guilty to regarding the film as a trifle hardly worthy of notice, and it is so in comparison to pest of pests, the Anacharis. Once get that in your ponds and you will find it more difficult to eradicate than the cattle murrain. The only perfect remedy is to destroy the whole of your plants, have all the mud taken out, concrete the pond bottom, make stations of garden soil, and replant with a totally new stock of plants. That is precisely what I had to do two years ago, for the Anacharis could be despatched in no other way. After the concrete was spread and had become sufficiently firm to walk upon, stations of brickwork were made upon it about a foot deep and a yard in diameter. The plan proves an excellent one, the plants being kept clean and the growth regulated much better than when the roots rambled far and wide about the entire bottom.

The plants which I have found to answer best are the Nymphæas, of which, however, I have only tried the common white and N. odorata, which spreads very fast and has pretty little flowers with very little scent; Nuphar lutea for variety, and the little N. pumila as a curiosity, with N. advena in a conspicuous position, with its noble foliage and handsome orange-coloured flowers. Aponogeton distachyon is in full beauty in autumn and throughout a mild winter, sending its seedlings by hundreds all over the pond and going to rest in early summer, never failing to remind us that in its native country (the Cape) winter begins on May-day. Richardia æthiopica, another Cape beauty, forming fine clumps of foliage well above the surface, and occasionally unfolding its parchment-like spathes; Calla palustris, with handsome foliage and long stems, which spread over the surface in a similar manner to the Bog Bean (Menyanthes trifoliata), which is already bristling with flower buds. I have established a colony of this in the soil alongside the pond, and it is curious to see how the stout creeping stems make their way outwards upon the water and send out roots upwards of a foot in length. This is one of our most beautiful aquatics, greatly improved by cultivation, both foliage and blossom being mere miniatures in its wild state.

Pontederia cordata has large handsome foliage and pale blue flowers on spikes. It is worthy of a place, making by its tall growth an agreeable break among those which rest altogether upon the surface. The Double Arrowhead (Sagittaria sagittæfolia flore-pleno) is a great beauty, and also tells well in clusters. It dies down in winter. In searching for some of its bulbs to transplant I could not find one in the centre of the station, all of them being close against the brickwork, but evidently flourishing, being large and plump and just starting into growth. Villarsia nymphæoides is pretty, but is a difficult plant to keep within bounds. The Water Soldier (Stratiotes aloides) has proved a failure with me, so also has the

Flowering Rush (Butomus umbellatus), which I have planted by the dozen, only to see it gradually dwindle away. The water is much impregnated with iron, and it is this which I think is so fatal to the Butomus. The lovely Water Violet (Hottonia palustris) does not answer in any of the large ponds, and I have made it a little still pool, where it is undisturbed and grows away freely enough. Along the pond margin and in shallow water Loosestrife, Marsh Gentian, Iris Pseudacorus, Crinum capense, Meadow Sweet (Spiræa Ulmaria), Myosotis sylvatica, Caltha palustris, and Mimulus alatus mingle well together, and make some pretty clumps.

Space for a small pool can be found in every garden. It need not be more than 2 feet deep, so that there will be no danger to children and the constant succession of plant-development going on in it. Plants that are really ornamental tend to make it one of the most attractive parts of the garden. To those who combine the love of insects with that of plants it is doubly so, for its waters teem with animal life, from the exotic gold fish down to the larva of a gnat. Water beetles are a study in themselves. Even a casual observer must, some time or other, have come upon a colony of the curious little Gyrinus natator (the common whirligig) darting about upon the surface in dark glistening armour; and the monster Dytiscus often attracts attention from its habit of flying from pool to pool. It is a voracious creature—a regular cannibal, eating up its own kith and kin, and every other insect it can lay hold of. Last year my children put one in a little aquarium with two young eels and a lot of the water boatman (Notonecta glauca). It soon cleared off all the Notonectas, and then turned upon the eels, one of which was found floating on the water half eaten, to our surprise, and upon watching closely a disturbance was soon seen among the stones at the bottom, and out came the other eel with the Dytiscus in full chase, so he had to be turned out. Quieter times followed, but peace is not more durable in the water than on dry land, almost all the insects preying upon each other, and many a tough battle is fought unnoticed beneath our eyes.—EDWARD LUCKHURST.

FRUIT PROSPECTS IN LANCASHIRE.

THERE is every appearance of a plentiful crop of all varieties of fruit this year in the neighbourhood of Liverpool. Gooseberries and Currants are heavily laden with plump fruit. Apple and Pear trees are completely covered with strong bold trusses of bloom. Peaches and Apricots are set in abundance. Plums had the smallest show of bloom of any of the fruit trees, yet there is plenty of fruit set for a good crop. Cherries, particularly Morello, are quite a mass of large blossoms; Damsons the same, only many of their blossoms are comparatively weak and small, yet if all the large flowers set there will be a heavy crop. As the season is now far advanced, and as fruit trees as well as everything else are late, we are, I think, quite safe for a plentiful fruit harvest. I may add that Strawberries promise an extraordinary crop.—H. ELLIOTT.

TOMATOES UNDER VINES.

THE article by Mr. Muir on the above subject at page 374 I frankly confess somewhat surprised me, and it would therefore be of service to myself and others to have details of Mr. Muir's method of successfully growing and fruiting Tomatoes under Vines. In my notes on mixed cultivation in houses (page 309) I stated that Tomatoes on the back wall did not thrive, and for the two reasons—that there is a Strawberry shelf hanging over them, and that the Vines keep both sun and light from them.

Tomatoes planted from the same sowing in a house to themselves present a striking contrast to the others. The plants are 5 or 6 feet high and very strong, fruiting within 9 inches of the ground, and have set their fruit all the way up the stem. The Trophy, which is rather difficult to manage in setting the fruit, has twenty or more large fruits in a bunch. This variety though late is the handsomest and heaviest Tomato, and is well worth growing.

The best of the plants in the late vinery may be 4 feet high, but spindly and drawn. They were strong when planted in March, about 12 inches high, and they have set the first lot of flowers, but I shall not expect any, or very few, fruit till they are higher up the wall. In another house which I planted May 1st there are more and larger fruit than in the late vinery. Most of the Tomatoes here are grown on single stems, though some plants have two and three stems, the treatment of all being the same, every side shoot being pinched out.—STEPHEN CASTLE, *Broadwater*.

AT page 374 Mr. Muir states that he has succeeded in growing Tomatoes under his Vines, but I have not been so fortunate. Six or seven years ago I grew them at the back of a house before the Vines had covered the roof, and for two or three years they never bore any fruit, but since that time I have placed them at the front of the house close to the glass and they have succeeded remarkably. Your correspondent advises us to fill up every vacant corner, but I am afraid that many could not succeed like him in producing a good crop of Tomatoes in a densely shaded house.—I. OF WIGHT.

GOOD PEAS.

I HAVE for more than forty years grown Knight's tall and dwarf Marrowfats, and there is no Pea to equal them for productiveness and flavour; yet, although seedsmen charge the highest price for these standard varieties, it is difficult to obtain the seed good, and still more difficult to get it true. Beyond question these are the best Peas grown. They may not suit market gardeners, as they require tall sticks; but this is scarcely an objection in a private garden, and indeed I have known large crops produced from them as trailers. If sown at the proper time they are very early, and there is nothing to equal them for summer and autumn crops. I know some persons say that the sweeter of Knight's two celebrated Marrows is too sugary, yet they allow their cooks to add sugar to other dry tasteless Peas to give them a flavour which the Knight's have already. It would, I am sure, be pleasing to those who like a good and well-flavoured vegetable were it known where seeds of Knight's varieties can be obtained true. Could we induce gardeners to limit their labours to the production of three or four standard varieties of Peas we should obtain them in a much more satisfactory condition.—A VETERAN SUBSCRIBER.

FRUIT PROSPECTS AND OTHER MATTERS.

I HAVE been waiting to see which way the cat will jump. It is difficult to speak positively of some fruits, such as Pears and Apples; all I can say is, they promise well. There will be abundance of Currants of all kinds, Raspberries, Gooseberries, and Strawberries. Plums here, except Diamond—a fine culinary sort—will be a very great failure. Cherries, except Morellos, have dwindled away. Peaches and Nectarines are at present a great success both indoors and out. The crops of Royal George and Dr. Hogg Peaches are specially fine. I shall have the best crop I have had for many years. The best crops of Nectarines are Pitmaston Orange, Pine Apple, and Rivers' Orange. I have two fine trees of the stoneless Barberry finely tressed. It makes excellent jam, and should be planted in shrubberies. Its tresses are yellow now, and coral berries on September 25th—the time for gathering. It combines the *utile dulci*, and should be more patronised.

As regards vegetables Asparagus has been as yet weak and late. Seakale pretty good. Peas wonderfully good. Onions and Parsnips have failed and have been resown. Carrots very good and regular. Potatoes planted early in January are coming up well. Roses are A1 and forward.

I agree with what "D., *Deal*," says in the last *Journal of Horticulture* as regards the late exhibition appointments. Many of my Roses show their colours now (June 2nd). He is coming to see me, and I shall be ready for him by June 20th or earlier. Let me here say that my sympathies are with him as regards the loss of his son. The feelings of a parent may be conceived by a parent, but they cannot be expressed by any. "D., *Deal*," is public property, and there is no one possessed of gratitude for his services and fine personal character but must feel sensibly his bereavement. I think he merits the high eulogy, "An honest man's the noblest work of God."—W. F. RADCLYFFE.

PROTECTING SEEDS FROM BIRDS.

IN your issue of the 22nd ult. is a letter on the above subject, in which red ochre is mentioned as a protection of seeds from birds. Some sixteen years ago when I was vicar of the parish of Lacock in Wiltshire, the gardener, Mr. Wilkyns, at the Abbey, told me that the only way he could keep the birds from his seeds was by using red lead. The Abbey garden is surrounded on three sides with woods and large shrubberies, and on the fourth side is the Abbey farmyard. The birds were

so numerous there it was no use sticking the Peas. Since then I have ever used red lead in my garden, and have never been troubled by birds in the seed beds. I always sow Radishes on the surface and then sprinkle a small quantity of red lead over the seeds. These are never touched by the birds or mice. —E. P. N., *Maidstone.*

AN AURICULA STAGE.

AURICULAS, to employ a familiar yet expressive term, appear to be "looking up." We have received three letters this week with inquiries for particulars of a simple structure for growing the plants in. Possibly the one submitted to us some years ago by "D., *Deal*," may be useful or suggestive.

The accompanying figures represent a stage capable of containing from 100 to 120 blooming plants. It is built against a wall and facing north; the ends are of brick and the front of wood, but this can be of brick as well. There is a gutter at the back as well as one at the bottom, but the back one is used because of the height of the wall; were the wall lower

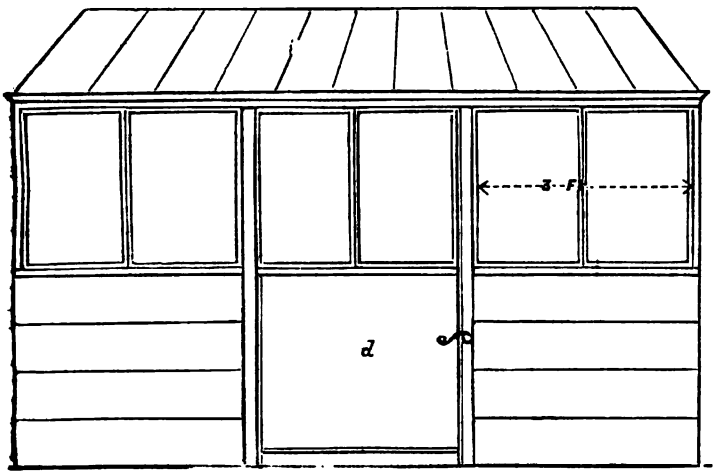


Fig. 60.—Front Elevation.

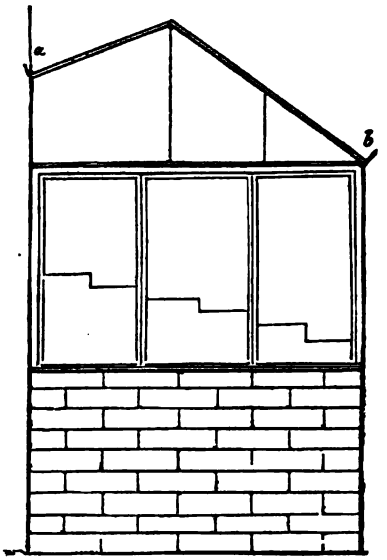


Fig. 61.—End View.

a, Gutter at back wall. *b*, Gutter in front. *d*, Door.
Height to apex of roof, 7 feet 8 inches.
Height in front, 6 feet.

Height of front boarding and end brickwork, 3 feet.
Height of front sashes, 3 feet.
Length, 10 feet. Width, 4 feet 8 inches.

it would not be necessary. The shelves are formed of two battens, moveable, and leaving a space between them; there are six shelves. It will be seen that the panes of glass are large—advisedly so, as they look so much better. The sashes in front move up and down like windows.

ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER.

MAY 31ST TO JUNE 6TH.

EACH year as Whitsuntide comes round the minds of all gardeners and the public more or less for miles round Manchester are directed towards the great floral fête that is displayed at the Botanic Gardens, Old Trafford. The magnitude both of the schedule and the gigantic and varied productions of nature and art brought from all parts of the country and staged for competition, cannot fail to have made a lasting impression on the minds of all who had the opportunity of seeing the Show this year. The specimens in their respective classes afforded evidence of the great progress made in horticulture during recent years. We question if ever a finer lot of plants was ever brought to an exhibition more worthy of special notice than some that were staged at this large Show. The amount offered in prizes was £1000, including twelve of the Society's gold medals. After the heavy rain of the previous day the weather on the opening day was very beautiful. The Judges entered at a little before eleven o'clock, and had finished their awards by a quarter to two. At two o'clock the gates were opened to the public, the stream of visitors steadily increased, and by the time Lord Derby and suite arrived the lawn was crowded by a dense assemblage of gentry. When Lord Derby, who is the President, appeared on the platform he was loudly cheered, and he declared the Exhibition open in a brief and very appropriate speech. We approached the Show through an avenue of hardy trees and shrubs, which were well grown and thoroughly developed into beautiful pyramids. They were exhibited by Messrs. John Waterer & Sons, Bagshot, and Messrs. W. G. Caldwell & Sons, Knutsford. The pair of Retinospora plumosa aurea, which were a magnificent golden colour, exhibited by Messrs. J. Waterer and Sons, cannot be passed without special notice, also the collection of Hollies which were exhibited by the same firm and obtained the Society's gold medal. The Hollies were in better condition than any previously seen at the Exhibition. The pot Roses were gigantic pillars of beauty, averaging from 7 to 9 feet in diameter, clad with thousands of large, well-formed, and well-coloured blooms. The hardy Rhododendrons were splendidly fresh, combining a great number of choice varieties, and completely filling one end of the large tent, while the opposite end was occupied with the nurserymen's Pelargoniums, large-flowering Fancy, Zonal, and Tricolors. Along each of the side terraces in this great structure were fine examples of Clematises, Ericas, Ferns hardy and exotic, Azaleas, Liliums, Cinerarias, Lycopodiums, Palms, gigantic Tree Ferns, and Yuccas. Taking the Exhibition as a whole we have no hesitation in saying that we have never seen as great a display in Old Trafford on any former occasion. Groups of Japanese plants in the large exhibition house from Messrs. J. Standish and Co., Ascot, and Messrs. John Waterer & Sons, were most tastefully arranged, and the beautiful Acers intermixed with such plants as Eurya latifolia variegata and others with green foliage produced a most striking effect. The Society's gold medal was awarded to Messrs. J. Standish & Co. Stove and greenhouse flowering and foliage plants, Orchids, Azaleas, &c., were arranged with great taste, and altogether the display was highly imposing.

To the right and left at the entrance of the house were the collections of twenty plants in the open class, ten flowering and ten foliage. Those on the left were exhibited by Mr. J. Cypher, Cheltenham, which obtained the first prize, and included Erica Cavendishiana, a noble plant 5 feet high and the same through, and so profusely bloomed that it was a most striking object. Stephanotis floribunda was remarkably well bloomed. A better plant could not be staged. Those on the right came from Messrs. Cole & Sons, Withington. These plants were placed second and were in excellent condition, including a grand specimen of Statice profusa and an Ixora Prince of Orange, a grand healthy plant rich in colour and having immense trusses of bloom.

The centre stages were filled with plants from the extensive nursery of Mr. B. S. Williams of Upper Holloway, and included a very choice collection of small plants, such as new Dracænas, Coleuses, Amaryllises, and a new Lælia purpurata Williamsi with four beautiful flowers. It is a fine variety, and well merited the certificate the Society awarded it. These were arranged not for competition, and comprised a general assortment of flowering and foliage plants. An excellent collection of plants also came from the well-known firm of Messrs. Osborn & Sons, Fulham; and especially attractive in this lot were two baskets of Gentiana acaulis. The remaining portion of this house was filled with other choice plants noticed below.

The Orchids were staged on each side along the front, and were a show in themselves. Odontoglossum vexillarium was shown in splendid condition by several exhibitors, and a remarkable plant of Vanda teres from J. Broome, Esq., of Didsbury had twenty-one spikes upon it, averaging from three to five flowers on each

spike. The furthest end of the house was occupied with the collections of plants in the amateurs' class by E. Pilgrim, Esq., Cheltenham, and J. F. G. Williams, Esq., Worcester. These two collections were so near alike as regards points of merit it would be a difficult matter to decide which really carried the palm, so they were awarded equal first.

The large canvas tent contained Pelargoniums, &c., above alluded to, Calceolarias, also the Roses, which were a very great and interesting feature of the Show. The hardy and exotic Ferns were arranged opposite the Roses and lower down the tent, and the end was banked up with a magnificent group of Hybrid Rhododendrons. Large Tree Ferns and Palms from Mr. B. S. Williams, standard Golden Yews and Portugal Laurels from Messrs. J. Waterer & Sons, standard Bays from Messrs. W. G. Caldwell and Sons, Knutsford, and from Messrs. J. Standish & Co., were dotted here and there according to the superior taste of the Curator, Mr. Findlay, and added materially to the general appearance of the tent.

The third and last tent contained on the right-hand side the beautiful and well-grown collection of alpine and herbaceous plants from Messrs. James Dickson & Sons, Chester; these included a Cypripedium spectabile with twenty flowers and other charming plants, which excited much attention and well deserved the Society's gold medal that was awarded them. This tent also contained a curious collection of Sarracenias and Nepenthes, also the Amaryllis from Mr. Anderson, Meadow Bank, which were excellent and much admired. A collection of hardy Ferns was exhibited by Messrs. J. & W. Birkenhead, Fern Nursery, Sale, Manchester, not for competition: they were healthy young plants. On the left-hand side opposite the fruit were arranged the hundred miscellaneous plants for effect which came from the Messrs. R. P. Ker & Sons, Liverpool. The arrangement was good, and included a Dracæna Robinsoniana, D. terminalis alba, D. imperialis, D. Hendersonii, D. speciosa; Crotons Mooreanum, undulatum, Lord Derby, and Disraeli, all well coloured considering the sunless weather. There was a good plant of Anthurium crystallinum, with Palms, Ferns, Ericas, Azaleas, Spiræas well grown, new Caladiums, and a general assortment of choice plants, and well deserved the Society's gold medal which was awarded to them. We now turn to the classes.

ORCHIDS.—In the nurserymen's class for sixteen exotic Orchids Mr. B. S. Williams, Upper Holloway, was first with extremely good plants. Masdevallia ignea, Aërides crispum, Lælia purpurata, Vanda tricolor insignis, Cattleya Morganæ with five spikes bearing ten flowers of large size almost pure white, with a faint magenta spot on the lip, very fine. This plant exhibited for the first time, received a certificate from the Society. Dendrobium densiflorum, D. nobile; Masdevallia Lindeni, a fine healthy plant bearing thirty-two flowers; Cypripedium Swannianum with twenty-two large flowers, a grand plant; Odontoglossum Alexandræ, good variety; Lælia Boothiana, a very healthy plant with nine good spikes, only two open; Cypripedium Lowii, one spike bearing four flowers; Masdevallia Harryana, rich in colour, nineteen large flowers and several others to open; Cattleya lobata, fourteen large flowers; Odontoglossum Pescatorei, a splendid well-bloomed plant; and Dendrobium thrysiflorum, a good plant, seven spikes. In the nurserymen's class for ten exotic Orchids Mr. B. S. Williams was again first. Cattleya Mossiæ; Masdevallia Harryana, ten open flowers; Odontoglossum Alexandræ, a magnificent plant with nine spikes; Dendrobium nobile; Cattleya Mendelii, a well-developed plant bearing seventeen large flowers, some of the flowers a little past their best; Cypripedium caudatum, three flowers; Dendrobium Bensoniæ; and the beautiful Odontoglossum vexillarium, with ten spikes and about twenty flowers open; Lælia purpurata, five large flowers; Oncidium sphacelatum, a grand plant with five large spikes. Mr. J. Cypher, Cheltenham, was second in this class; his collection included a very good and healthy plant of Cypripedium barbatum superbum, thirty-five flowers; and a fine plant in a pot of Dendrobium Devonianum, and other good and well-bloomed examples.

In the amateurs' class for fifteen Orchids in flower, W. Turner, Esq., Winsford (gardener Mr. Bolt), secured the first position. This collection was really superb, containing a grand mass of Cypripedium barbatum superbum, Saccolabium præmorsum (named Turneri). This was a magnificent plant containing four large spikes, the flowering portion of which being fully 2 feet in length. Odontoglossum citrosmum with seven spikes; Cattleya Warneri, ten large flowers; Aërides odorata, five spikes; Lælia purpurata, a fine plant, four spikes; Odontoglossum Pescatorei, one spike; Cattleya Mossiæ superba, twenty large flowers; Odontoglossum Roezlii, well-bloomed fine variety; Saccolabium guttatum (Loddige's old variety); Aërides Fieldingi, five spikes, very good; Oncidium Marshalli, three spikes; Masdevallia Lindeni; Odontoglossum vexillarium, remarkably fine with large flowers and sixteen fine spikes; and Odontoglossum cirrhosum, thirteen spikes. W. Leech, Esq., Fallowfield (gardener Mr. Swan), was second. The collection included Oncidium serratum, Masdevallia Harryana, Phalænopsis Lüddemanniana, Dendrobium thyrsiflorum, a fine plant and well bloomed; Oncidium macranthum, one fine spike; Cypripedium caudatum, well grown and healthy with ten flowers; Masdevallia Veitchii, Odontoglossum Andersonianum, Dendrobium densiflorum, Thunia Marshalli, Aërides Fieldingi, Odontoglossum Alexandræ, Anguloa Clowesi, Cypripedium barbatum superbum, Odontoglossum cirrhosum, all admirably grown. Geo. Hardy, Esq., Timperley (gardener Mr. Hill), was placed third with plants of Odontoglossum Blunti, two spikes; Cattleya Acklandiæ; Cattleya Mossiæ, four flowers, good variety; Cattleya Mossiæ grandis, eight fine flowers; Cypripedium Sedeni, two flowers; Masdevallia Harryana, Cypripedium nævium, Aërides suavissimum, Oncidium leucochilum, two spikes; Masdevallia Harryana superba, Cattleya Mossiæ superba, nine large flowers; Cattleya Mossiæ grandiflora, four flowers; Cattleya Mossiæ aurea, four flowers; and Cypripedium caudatum roseum, two flowers. A good collection. In the class for nine exotic Orchids in flower (amateurs), first R. B. Dodgson, Esq., a good plant of Aërides odoratum majus, with fifteen spikes; A. crassifolium, one spike; Odontoglossum vexillarium, an extra fine variety with large flowers and a good colour, were noticeable in this collection. Second, W. Turner, Esq. (gardener Mr. Bolt). Third, J. Broome, Esq., (gardener Mr. Williams). In the amateurs' class for six Orchids, first, J. Broome, Esq., Didsbury. In this lot was the fine Vanda teres before alluded to, and a fine Cypripedium caudatum. Second, R. B. Dodgson, Esq., Blackburn. Third, Dr. Hodgkinson, Dunham Massey. In the class for one exotic Orchid in flower, first, W. Turner, Esq.; second, James Fildes, Esq., Chorlton; third, W. Leech Esq.

STOVE AND GREENHOUSE PLANTS.—In the nurserymen's class of twenty plants, ten flowering and ten foliage plants, Mr. J. Cypher, Cheltenham, was placed first. This collection contained some wonderful specimens, amongst which the following were most worthy of note—Azalea Flag of Truce; Bougainvillea glabra, rich in colour and well bloomed; Latania borbonica; Azalea Vivid, a grand pyramidal plant; Erica Cavendishiana, before alluded to; Ixora regina, a rich mass of bloom; Pimelea spectabilis rosea, 5 feet through and covered with bloom; Croton majesticum, well coloured; Stephanotis floribunda, Clerodendron Balfourianum, and a good Croton undulatum. Messrs. Cole & Sons, Withington, were second with good plants of Gleichenia rupestris, Bougainvillea glabra, Statice profusa good, Azalea Le Géant, Duc de Nassau very fine, Ixora coccinea superba, and I. Prince of Orange; Gleichenia rupestris glauca, Crotons variegatum and Johannis well grown. Mr. W. G. Caldwell, Knutsford, had the third position. In this collection Erica tricolor rubra, E. tricolor speciosa, Cycas revoluta, Davallia Mooreana (a fine plant 8 feet through), Anthurium Schertzerianum, and Aphelexis macrantha rosea were well grown.

In the corresponding amateurs' class of twenty plants, ten in flower and ten foliage, first E. Pilgrim, Esq., Cheltenham, with good and well-grown plants of Ixora Pilgrimi, Croton Weismanni, C. undulatum, the best puce example in the Show, well coloured and 6 feet through; Azalea Duc de Nassau, A. magnificans, A. Holfordiana, well and evenly bloomed; Gleichenia rupestris, good; Clerodendron Balfourianum, a magnificent plant and well bloomed; Hedaroma fuchsioides, remarkably fine plant; and Erica Victoria Regina, all being very good. Equal first, J. F. G. Williams, Esq., Worcester (Mr. Tudgey, gardener). This collection contained without doubt the finest Anthurium Schertzerianum in the Show; a grand plant of Erica Cavendishiana, Aphelexis macrantha rosea, Erica ventricosa magnifica, and Hedaroma tulipifera about 6 feet through. There were also some good Palms, Crotons, &c., in this excellent group. No second prize was awarded. Third, J. Rylands, Esq. (gardener Mr. Smith). This collection contained the only Alocasia Lowii in the Show, which was a very fine plant. The other plants were good, and much the same as those named in the above two collections.

In the amateurs' class for eight stove and greenhouse plants in flower E. Pilgrim, Esq., Cheltenham, was again first with good plants of Azalea sinensis; A. Stella, a very fine plant; Ixora Williamsi, a superior specimen and well bloomed; Anthurium Schertzerianum; Erica ventricosa coccinea minor, E. Cavendishiana, Boronia pinnata, and a good Stephanotis floribunda. Second, J. F. G. Williams, Esq., Worcester, with Anthurium Schertzerianum, Erica tricolor impressa, E. magnifica, E. grandiflora, Pimelea decussata, and well-bloomed plants of Azalea Sir C. Napier and A. Distinction. H. Sampson, Esq., Bowdon (gardener Mr. Lingard), was placed third with Azalea Louis Von Baden; Aphelexis purpurea, remarkably fine: Hedaroma tulipifera, Erica magnifica, E. Cavendishiana, Stephanotis floribunda, Dipladenia amabilis, and Azalea L. Wood.

ERICAS.—In the amateurs' class for six greenhouse Ericas, distinct, Mr. Tudgey, gardener to J. F. G. Williams, Esq., Worcester, secured the first with moderately large specimens of E. Cavendishiana, E. ventricosa grandiflora, E. ventricosa coccinea minor, E. affinis, E. superba, E. mutabilis. Mr. Hamlett, gardener to E. Pilgrim, Esq., Cheltenham, was a good second with a fine, even, well-flowered lot composed of the following: Erica affinis, E. Spenceriana, E. depressa, E. Bandoniana, E. profusa, and E. jasminiflora nana. Mr. Smith, gardener to J. Rylands, Esq., Stretford, was third.

For eight Ericas (nurserymen) two lots only were staged

Mr. Cypher of Cheltenham securing the first position with well-flowered healthy specimens. Particularly good were the following in this collection: Erica Victoria, E. delicata, E. depressa—this was very fine—E. cristata obbata, E. ventricosa magnifica and profusa. Messrs. Cole & Sons were a very close second with the following: E. ampullacea major, E. Cavendishiana, E. ventricosa coccinea grandiflora, E. affinis, E. florida, E. Lindleyana, and E. ventricosa major. All good.

In the nurserymen's class for ten large greenhouse Azaleas only two collections were staged. Messrs. Cole & Sons of Withington received the first award with large plants of the following varieties: Flower of the Day, Duchesse Adelaide de Nassau, two plants of Extranei. Criterion, Duc de Nassau, Stanleyana, and Magnifica.

Roses.—There were three classes for Roses—twelve, twenty, and thirty. Mr. Charles Turner of Slough was the only competitor in all the three classes, and his collections were grand. They occupied three very prominent positions in the large tent—in fact they were the premier feature of the whole structure. In the class for twelve large Roses Mr. Turner had magnificent specimens 7 or 8 feet through, Charles Lawson bearing two or three hundred open blooms, and nearly of the same size was Céline Forestier, on which the blooms were even more numerous than the former. Then come Madame Thérèse Levet, Miss Ingram, Beauty of Waltham, La France, Souvenir de la Malmaison, Marquise de Castellane, a rounded pillar of great beauty; Paul Verdier, Edouard Morren, Juno, and Souvenir d'un Ami—a truly splendid collection. For twenty Roses in pots not more than 6 inches across Mr. Turner won the premier prize with fine healthy plants averaging from twenty-five to thirty blooms on each. Madame Victor Verdier, Camille Bernardin, Pierre Notting, Duchesse de Vallombrosa, Royal Standard, La France, Fisher Holmes, Star of Waltham in grand condition, John Stuart Mill, Sir Garnet Wolseley, Avocat Duvivier, Souvenir de Spa, Vicomte Vigier, Madame Margottin, Madame Victor Verdier, Souvenir d'un Ami, Céline Forestier, Duchesse de Vallombrosa, Fisher Holmes, and Edouard Morren. This magnificent group was all that could be expected in flower and foliage. Mr. Turner's prize plants in the class for thirty Roses consisted of much the same varieties as those which composed the two former classes. In the amateurs' class for six Roses, distinct, there were four competitors. Mr. Cooper, gardener to W. G. Leigh, Esq., M.P., of Didsbury, was first with a very beautiful collection of splendid well-bloomed plants, conical-shaped, and comprised the following varieties—Madame Laurent, Madame Lacharme, Marquise de Castellane, Coquette des Blanches, Charles Lawson, and Baronne de Rothschild. Mr. Brockbank of Didsbury was a good second. J. Brown, Esq., of Heaton Mersey, third.

Fine-foliage Plants.—In the amateurs' class for ten fine-foliage plants H. Samson, Esq., was placed first with remarkably fine plants of Cycas revoluta; Croton variegatus, very fine and well coloured; Cocos Weddelliana, this was a beautiful plant; Gleichenia rupestris, 8 feet through; Croton Weismanni, Latania borbonica, a very large, well-grown plant; Pandanus Veitchi, Phormium tenax variegatum, Areca Verschaffeltii, and Thrinax elegans. J. H. Birley, Esq., Pendleton, was second with very fine plants of Cibotium Schiedei, Cocos Weddelliana, Croton angustifolium, C. Weismanni, Cordyline indivisa, and Yucca aloifolia variegata. R. B. Dodgson, Esq., Blackburn, was third; this collection including good examples of Maranta Veitchii, Anthurium crystallinum, and Croton Disraeli.

Dracænas.—In the nurserymen's class for ten Dracænas Mr. B. S. Williams of Holloway again received the Society's gold medal for well-grown and beautifully coloured plants of Dracæna recurva, very fine; D. Bausei; D. Robinsoniana, a very distinct and beautiful plant, which worthily received a certificate from the Society; D. Berkleyi, D. amabilis, D. terminalis alba, D. Fredericki, D. ignea, a beautiful variety with arched leaves; D. Duffii, and a remarkably fine plant of the distinct D. Goldieana. In the amateurs' class for six Dracænas, distinct, first, J. Broome, Esq., Didsbury; second, E. Bowden, Esq., Bowdon; third, R. B. Dodgson, Esq., Blackburn.

Crotons.—In the nurserymen's class for eight Crotons Mr. B. S. Williams, Upper Holloway, was awarded the Society's gold medal for plants of Croton majesticus Henryanus (certificated), a handsome bold-leaved variety, and will undoubtedly become a great favourite. C. Weismanni, C. Queen Victoria and Prince of Wales, C. albicans, a fine and desirable plant, and one of the most striking in the collection; the leaves are about 12 inches long, the ground colour is dark shining green, beautifully variegated with ivory white. Fasciatus a good plant, and Croton Williamsi (certificated), a beautiful plant between 3 and 4 feet high, and having bold leaves, and the magenta that is suffused all over the leaf turns with age to a very rich crimson, which makes it very distinct. A remarkably fine group.

In the amateurs' class for six Crotons, distinct, J. Rylands, Esq., Stretford, secured the first position with, amongst others, noticeable plants of Croton Prince of Wales, C. Disraeli very fine, and C. Weismanni. S. Schloss, Esq., Bowdon (gardener Mr. Beddoes), was second. This collection included remarkably well-grown plants of Croton Queen Victoria, Prince of Wales, and Disraeli. E. Pilgrim, Esq., Cheltenham, was third with good plants and varieties. This lot also included good examples of Queen Victoria and Disraeli. Only two pairs of Yuccas were staged, large clean plants clothed down to the pots. Mr. Beddoes, gardener to S. Schloss, Esq., of Bowdon, was first with Y. filamentosa and Y. aloifolia. Mr. Williams, gardener to J. Broome, Esq., was second with Y. quadricolor and Y. aloifolia.

New and Rare Plants.—In the nurserymen's plants Mr. B. S. Williams received the Society's gold medal with the following plants:—Adiantum neoguinëense, Calyptronoma Swartzii, a very beautiful Palm, and well adapted for table decoration; Gleichenia diacarpa longipinnata, a very fine Fern; Dracæna Earl of Derby, which received a certificate, and was named in honour of the President (Lord Derby) opening the Exhibition. This is a very beautiful Dracæna. Microlepia hirta cristata, a beautiful Fern from the South Sea Islands; a good specimen of Croton Prince of Wales; Dracæna superba, certificated by the Society, a great acquisition amongst the dark-leaved kinds, and will be a valuable table plant; Aralia nobilis, Cycas crassifolia, and the beautiful Adiantum Williamsi, which also received a first-class certificate. In the amateurs' class for six new and rare plants J. F. G. Williams, Esq., Worcester, was placed first, his collection including a splendid plant of the beautiful white Anthurium Williamsi, nearly 2 feet across and well bloomed. It was said to be the finest specimen ever exhibited. Second, R. B. Dodgson, Esq.; third, J. Broome, Esq.

Ferns.—For eight stove or greenhouse Ferns, distinct, four collections were staged. Mr. Lingard, gardener to H. Samson, Esq., Bowdon, secured first honours with a noble collection, such as grand examples of Gleichenia speluncæ, 10 feet in diameter, splendid dark shining green. Next to this sturdy giant stood G. Mendeli, G. dichotoma, and G. flabellata. These four were the cream of the collection, and undoubtedly reflected the greatest credit on the skill of Mr. Lingard. The other half of the collection was composed of good plants of Cibotium spectabile, Davallia Mooreana, Cyathea medullaris, and Dicksonia antarctica. The second prize was won by Mr. Osman, gardener to R. B. Dodgson, Esq., of Blackburn. This also was a very meritorious lot, in which there was a grand Gleichenia rupestris and Cyathea dealbata. For one pair of Tree Ferns Mr. B. S. Williams was the only exhibitor, and was awarded the first prize for superior specimens. In the class for sixteen Adiantums, distinct, J. G. Silkenstadt, Esq., Didsbury, was placed first for an excellent collection, including a superior example of Adiantum gracillimum; second, G. Hodgkinson, Esq., Dunham Massey (gardener, Mr. Boardman); third, R. B. Dodgson, Esq., Blackburn. For six pans of Selaginellas only one collection was staged. The pans were fine, and contained the following:—S. caulescens, S. cæsia, S. arborea, S. Martensi variegata, S. Wallichii, and S. Willdenovi. They were exhbited by Mr. Elden, gardener to J. H. Birley, Esq., of Pendleton, who was awarded the first prize.

In the class for twelve hardy Ferns, distinct, four collections were staged. The first prize went to Mr. Henry Crowe of Greenheys for very excellent specimens of Athyrium F.-f. plumosum, Onoclea sensibilis, Osmunda Claytoniana, Athyrium F.-f. Victoria, and a very beautiful specimen of Osmunda regalis crispa. Mr. Heaketh, gardener to E. Birley, Esq., Pendlebury, was a close second. In the class for twelve hardy Ferns, staged for the gold medal, Mr. Rylance was the only exhibitor, and well deserved the honour he won with a collection including extremely fine healthy and even-sized examples of Scolopendrium crispum, Athyrium F.-f. Craigii, Lastrea F.-mas cristata angustata, Polystichum angulare cristatum, Osmunda regalis cristata, Athyrium F.-f. plumosum, Lastrea F.-mas cristata, Athyrium F.-f. corymbiferum, Lastrea F.-f. grandiceps, Athyrium F.-f. tortile, A. F.-f. Vernoni, A. F.-f. Feildii, Lastrea F.-mas Barnesii, Athyrium F.-f. stipatum, and Adiantum pendatum. No third awarded.

Pelargoniums.—In the class for eight show Pelargoniums only one collection was staged—viz., by Mr. Rylance of Ormskirk. They were very healthy, large, compact, well-bloomed plants, and were very deserving of a first prize; the varieties were very choice and distinct. For eight fancy Pelargoniums Mr. Rylance was again in the premier position with a grand collection, still more densely crowded with bloom, the varieties being composed of the following:—Helen Beck, Advancer, Lucy, Ann Page, Juliet, Delicatum, Fanny Gair. Mr. Rylance was the only exhibitor of eight Zonal Pelargoniums. He staged healthy plants with enormous trusses, Mrs. Jacoby, Wellington, Madame Vaucher, Coleshill, Queen of Beauties, Vesuvius, Acme, and Jean Sisley. In the class for six Zonal Pelargoniums only two lots were staged. Mr. McGaw, gardener to J. F. Summer, Esq. of Hayfield, who won first, had a very creditable collection, comprising Thomas Hill, White Perfection, Sir J. Paxton, Mrs. Keeler, Vesuvius, and Colonel Wright. Mr. Brierly, gardener to D. Adamson, Esq., of Didsbury was second with similar varieties. For six variegated or tricolor Pelargoniums Mr. McGaw came first with splendid well-coloured specimens; they were a little too flat nevertheless, yet bore signs of skilful cultivation. The varieties were Mrs. Watson, Charming Bride, Lady Cullum, Mrs. J. Clutton, Italia Unita, and Louisa Smith. Mr. Compton, gardener to E. Rogerson, Esq., of Cheadle was second with plants almost equal in point of merit.

Rhododendrons.—The Society's gold medal for fifty specimens

was awarded to Messrs. Waterer & Sons of Bagshot, Surrey, for a densely flowered lot, among which were very noticeable—Mrs. Williams, a splendid pink; William Ewart Gladstone, Princess Mary of Cambridge, Joseph Whitworth, very dark, almost black; Mrs. William Agnew, splendid delicate pink, large truss; W. H. Punchard, B. W. Currie; Queen, splendid variety, large truss almost white; Concessum; Helen Waterer, beautiful scarlet with light pink throat; Village Maid, and Duchess of Bedford.

Liliums.—Only two collections were staged, and the plants were in every respect splendid specimens of L. auratum. Mr. Beard, gardener to J. G. Adams, Esq., Ashton-on-Mersey, won the first prize. The second went to J. Fields, Esq., Chorlton-cum-Hardy, whose plants were nearly double the size of the first-prize lot, with flowers quite as large and twice as numerous, the only drawback being the flowers were not all open.

Calceolarias.—Seven collections were staged, the plants representing a great variety of charming colours and splendid large full flowers. The position which they occupied displayed them to great advantage, it being a sloping bank with a background of hardy Ferns and a margin of beautiful Pansies in pots. The first prize was won by Mr. Humphries, gardener to J. G. Silkenstadt, Esq., of Didsbury. The second went to Mr. Swan, gardener to W. Leech, Esq., Fallowfield; and the third to Mr. Elphinstone, gardener to J. Heywood, Esq., of Stretford.

Cinerarias.—For ten plants only two collections were staged, and they were all seedlings, but the colours were very distinct, the flowers large, and the plants had foliage clean and healthy. It was a very close race for the first place, which was secured by Mr. Brierly, gardener to D. Adamson, Esq., Didsbury; Mr. Rose, gardener to D. M'Clure, Esq., Heaton Mersey, being an excellent second.

Clematises.—For ten plants in flower the Society's special prize was awarded to Mr. R. Smith of Worcester for a most notable collection of extremely fine large-flowering varieties, such as Madame Van Houtte, Lady Caroline Nevill, Henryi, Purpurea elegans, Sensation very charming, as were also Marie Lefebvre, Impératrice Eugénie, Mrs. James Bateman, Lawsoniana, Gloire de St. Julien, Alexandra, Gem, and Madame Grainger.

Miscellaneous.—For twenty miscellaneous plants Mr. Smith, gardener to J. Rylands, Esq., Stretford, was first with Cibotium regale, Erica perspicua nana, Yucca aloifolia, Azalea Roi d'Holland, Dracophyllum gracile, Areca lutescens, Geonoma spixiana, G. gracilis, Ananassa sativa variegata, Vanda tricolor, Hedaroma fuchsioides, Azalea Blanche, and Erica ventricosa coccinea minor. The second prize went to Mr. Boardman, gardener to G. Hodgkinson, Esq., Dunham Massey. J. F. G. Williams, Esq., was third, all the collections being excellent. In the nurserymen's class for one hundred miscellaneous plants, in or out of flower in any sized pots (arranged for effect), the Society's gold medal was awarded to Messrs. R. P. Ker & Sons, Liverpool.

For the best collection of Sarracenias and Nepenthes, J. Fildes, Esq., Chorlton, was first with a magnificent collection which added much to the interest of the Show. Second, J. Broome, Esq., Didsbury.

For the best collection of Amaryllises, nurserymen's class, the Society's gold medal was awarded to Mr. J. Anderson, Meadow Bank, Glasgow. This was a splendid collection. One variety named Mrs. Findlay, and one William Allen, received certificates from the Society.

In the nurserymen's class for eighty alpine and herbaceous plants Messrs. Dickson & Sons of Chester were awarded the Society's gold medal.

For ten hardy evergreen trees and shrubs (nurserymen's class), Messrs. John Waterer & Son, Bagshot, were awarded the Society's gold medal. They were also awarded the Society's gold medal for twenty-five Hollies in eight varieties.

For a collection of Japanese plants the Society's gold medal was awarded to Messrs. John Standish & Co., Ascot. For a pair of Retinospora aurea Messrs. J. Waterer & Sons, Bagshot, secured the first prize.

A special certificate was awarded to Mr. R. Smith, nurseryman, Worcester, for Adiantum farleyense alcicorne, a very distinct variety with deeply lacinated pinnæ.

FRUIT.—The show of fruit was not large, but was as good as could have been expected considering the bad forcing season fruit-growers have had to contend with. A remarkably fine dish of Brown Turkey Figs came from Mr. Pratt, gardener to Viscountess Hill, Hawkstone, not for competition, which was highly commended by the Judges.

For the best collection of fruits Mr. Miles, gardener to Lord Carington, Wycombe Abbey, was placed first with a collection which contained two dishes of James Veitch Strawberry, very large; Black Hamburgh Grapes, Brown Turkey Figs, Elruge Nectarines, two dishes of Cherries, Golden Gem Melon, and Muscat of Alexandria Grapes. F. J. Summer, Esq., Hayfield, was second. Mr. Mann, gardener to Mrs. R. Hornsby, St. Vincent's, Grantham, third, whose collection included two good Melons, Mann's New Hybrid and York Hybrid.

In the class for two bunches of black Grapes Mr. Jamieson, gardener to the Earl of Crawford and Balcarres, won the first position with two good bunches of Black Hamburgh. Mr. McGaw, gardener to F. J. Summer, Esq., Hayfield, was second; and J. Tomlin, Esq., Bracknell, Berkshire, third. For two bunches of white Grapes Mr. T. Bannerman, gardener to Lord Bagot, was first with two good bunches of Buckland Sweetwater; second, Mr. Jones, gardener to J. Johnson, Esq., Congleton, with two bunches of Golden Champion in very good condition and free from spot. Third, F. J. Summer, Esq., Hayfield.

In the class for Strawberries in pots Mr. J. Upjohn, gardener to the Earl of Ellesmere, Worsley, was placed first with La Grosse Sucrée, a wonderful crop for the small pots in which the plants were grown. F. J. Summer, Esq., Hayfield, was second with President; and Mr. Elphinstone, gardener to J. Heywood, Esq., Stretford, third with Sir Joseph Paxton.

Implements.—There was a very large display of all kinds of garden implements from well-known horticultural builders, hot-water engineers, &c.; boilers, valves, summer houses, with greenhouses on the most improved systems of ventilating, with various other articles for garden and domestic purposes. The Exhibition was one of great magnitude and variety, and was arranged and conducted in the most satisfactory manner by Mr. Bruce Findlay.

ROYAL WESTERN HORTICULTURAL SOCIETY.

THIS old-established Horticultural Society held its annual spring Exhibition on the 27th and 28th ult. in the large hall of the Plymouth new Guildhall, a building admirably suited for the purpose. The productions were displayed on several low flat tables of diamond and other shapes in the body of the hall, and the exhibition was one of the most pleasing and artistically arranged that we have ever seen.

Considering the backward season the classes were well filled, and the competition was in most cases good, while everything exhibited was above the average excellence. Calceolarias were both numerous and well grown. Mr. W. Cause, gardener to Admiral Hope, Her Majesty's Dockyard, was awarded the first prize for nine varieties; Mr. Howell, gardener to Captain Tolcher, was awarded the second, and Hamilton Whiteford, Esq., the third prize. In the class for six varieties Mr. H. Whiteford was placed first, Capt. Tolcher second, and Mr. G. H. E. Rundle third. The whole of the collections were very meritorious. Pelargoniums were strongly represented. For nine varieties of the large-flowering or show varieties Mr. H. Whiteford, Mr. J. Steer, and Mr. Fortuna were first, second, and third respectively; while for six and three plants Mr. J. Watts obtained the two first prizes with well-finished plants. Zonals came from Mr. W. Melhuish, Mr. H. Whiteford, and Mr. J. Steer, who were placed in the order of their names; while the prizes for Tricolors fell to Mr. Tamlin and Mr. C. Prideaux, each of whom staged medium-sized and beautifully coloured plants.

There were only two entries for table plants, but both collections contained very neat and graceful examples. Mr. Salway, gardener to E. C. Baring, Esq., obtained the first prize, while the second fell to Mr. Hawke, Liskeard, Cornwall. Mignonette was very good, especially the first-prize collection exhibited by Mr. C. Prideaux. The plants were large, admirably trained, and profusely flowered.

Three classes were provided for Azaleas. The plants were densely flowered and well finished, but were not above the medium size. Mr. C. Prideaux was awarded the first prize in the open class for six plants, the best of which were La Paix, Stella, and Coronata. The second-prize collection was a most beautiful six. These plants were exhibited by Mr. T. Chalice, South Devon Nursery, Plympton, and the varieties were Mr. W. Bull, Grand Duchess of Baden, Flag of Truce, Duchesse de Nassau, and Louis Margottin. Several well-coloured collections of Coleuses were contributed, the best coming from Mr. C. Prideaux, and contained two very fine plants of Kentish Fire and Lord Falmouth, desirable new varieties for decorative purposes.

Roses in pots were very poorly represented, and the Judges did quite right in withholding the first and second prizes. The cut blooms that came from a distance were very superior and were greatly admired. Messrs. Curtis, Sanford, & Co., Torquay, contributed several excellent boxes, principally Maréchal Niel; but the greatest feature was the collection of forty-eight varieties, distinct, sent by Mr. Moorman, gardener to Miss Christy, Coombe Bank, Kingston-on-Thames. This collection contained 108 blooms, many of which were of great size and substance. Mr. Smyth, St. Austell, Cornwall, also sent a collection named as twenty-four varieties, but he merited the rebuke of the Judges for exhibiting blooms under wrong names, for they withheld the first prize in consequence, only awarding a second.

VEGETABLES.—These were well cultivated, and bearing in memory the untoward season the entries were very numerous. The first prize for the best collection fell to Mr. Thorn, gardener to J. Watts, Esq., and a grand collection it was, every vegetable of superior quality, well washed, and tastefully arranged. Mr. James Spear obtained the second award with a meritorious collection. Cauliflowers were large, white, and good. Aparagus about the finest we have seen grown in England, while the French Beans,

Potatoes, Cucumbers, and Lettuces were simply superb. From eleven classes for vegetables Mr. J. Watts obtained seven prizes. Mr. Spear, Antony, exhibited the first bunch of English-grown spring Turnips we have seen this year.

On the first day of the Show the rain somewhat marred the pleasure of the visitors, but the afternoon of the second day being fine the great hall was crowded, and both Mr. Dillon and Mr. Barter the Secretaries with their colleagues merit the success which they achieved.

TABERNÆMONTANA CYMOSA FLORE-PLENO.

THIS beautiful plant is now being sent out under the name of T. Camassa by Mr. B. S. Williams, Upper Holloway, to whom we are indebted for the specimen represented in the accompanying engraving. The variety was obtained from a Belgian garden a few years ago, and after being in cultivation for a short time it was found to be so much superior to the double T. coronaria in size of flowers, free blooming, and richness of perfume, that it was extensively propagated in the place of T. coronaria, which it so much excels. The trusses are very large, as can be seen in the engraving, in which, however, the individual flowers are somewhat below their natural size; the latter are very full, extremely fragrant, and pure white, affording a pleasing contrast with the dark green foliage. The plant is not only a valuable addition to our list of decorative stove plants, flowering with great freedom in 5-inch pots, but will also prove very useful to afford a supply of cut flowers, and for that purpose it will no doubt be largely grown when its merits are more generally known. We may mention that the typical species, of which we believe this to be a variety,

Fig. 62.—TABERNÆMONTANA CYMOSA FLORE-PLENO.

is a native of Carthagena, and was introduced to this country in 1824. We are unable to find any authority for the name adopted by Mr. Williams, which is probably a mis-spelled rendering of the true name.—L. C.

NOTES AND GLEANINGS.

NOTWITHSTANDING the great quantity of blossoms on the Pear trees this season we regret to hear that there is but a poor prospect of fruit. Not that the trees have suffered from frost, but from the long-continued wet weather which has been so prevalent all through the blooming period. It may not be generally known that a damp atmosphere, which checks the free distribution of the pollen and thereby prevents fertilisation, is as detrimental to the crop as a destructive frost; and it is very disappointing that in a season when there has been a marked absence of our old enemy there should be a failure through another cause, which is equally irremediable. The Pear blossom at Chiswick is all dropping through this cause.

— AT the GREAT SHOW of the ROYAL HORTICULTURAL SOCIETY held last week the following medals were awarded after our reporters left the Exhibition:—A silver Banksian to each of the following exhibitors: Mr. B. S. Williams for a group of plants; Messrs. W. Cutbush & Sons, Highgate, for New Holland plants; Messrs. Ivery & Son, Dorking, for a collection of Azaleas; Messrs. Osborn & Sons for Ferns, hardy plants, &c.; Mr. Aldous, Gloucester Road, for dinner-table decorations; Messrs. Wm. Paul & Son, Waltham Cross, for six boxes of cut blooms; Mr. A. Parmley, Park Side, S.W., for bridal and ball bouquets; Messrs. Critchley, Grosvenor Works, Cheltenham, for patent heat regulators; Messrs. Doulton & Co., Lambeth Pottery, for vases and flower pots; Mr. J. Mathews,

Royal Pottery, Weston-super-Mare, for vases and flower pots; Messrs. Foster & Pearson, Beeston, Notts, for patent valves; Messrs. W. Richardson & Co., Darlington, for greenhouse ventilators, &c.; and Messrs. J. G. Thomas & Co., 362, Edgware Road, for specimens of wirework. Gold medals to Messrs. G. Jackson & Sons, Woking, for a collection of Clematises; and Messrs. Joseph Davis & Co., 90–92, Crampton Street, Newington Butts, for a collection of barometers, &c. Silver Flora medals to Mrs. Cussons, Southport, for a collection of skeletonised leaves; to Mrs. Hodgkins, 35, Hyde Grove, Manchester, for a similar collection. Silver-gilt Flora medals to Messrs. Paul and Son, Cheshunt, for a collection of Roses; and Messrs. H. Lane and Sons, Great Berkhampstead, also for a collection of Roses, a bronze Knightian being awarded to Mr. J. C. Mundell, gardener to Lord Ebury, Ricksmansworth, for eighteen varieties of Apples. The other medals were noticed in our report.

—— We have received some CINERARIA BLOOMS from Messrs. Carter & Co. of Perry Hill Nursery, Sydenham, which are remarkable alike for excellence of form, substance, and deep colouring. A few of the most noticeable may be briefly described as follows:—A medium-sized flower, extremely rich crimson self; a very deep purplish blue, large flower, and good form; a bright crimson self; a neat dark blue self; a large flower, white ground deeply edged with crimson; one similarly edged with blue; and one slightly tipped with bright purple. These are only examples of the flowers sent, many others being equally meritorious. The flowers have been gathered from a collection of nearly 2000 sturdy plants that are being grown for seed in the nursery referred to, and where they have for some time past produced a splendid effect.

—— In our report of the CRYSTAL PALACE SHOW on p. 401 Mr. James is credited with having received a certificate for a beautiful Calceolaria named Crystal Palace. The raiser and exhibitor of the plant was Mr. James Ford, gardener to J. G. Meegaw, Esq., Windermere House, Church Road, Upper Norwood. We also omitted to state in our report of the great Show at South Kensington that Mr. Ford exhibited a collection of Calceolarias, the plants being remarkable for high cultivation. They were very dwarf and vigorous, and the flowers were of great size, excellent form, and were richly spotted. A silver Banksian medal was awarded for the collection.

—— A CORRESPONDENT writes to us as follows on the season: "The newspapers are full of predictions of a coming excessively hot and dry summer; but against this opinion there is an old adage—

"Oak before Ash, splash, splash,
Ash before Oak, choke, choke."

meaning that if the Oaks come into leaf before the Ash the summer will be wet, and if the Ash is first in leaf it will be a dry season. In this neighbourhood (Grange-over-Sands) the Oaks have been fully a fortnight in advance of the Ash trees in coming into foliage this year."

—— THE SPECIAL PRIZES offered by Messrs. Carter & Co. and Hooper & Co. for vegetables, also by Messrs. J. Laing and Co. for Tuberous Begonias, will be competed for at the Royal Horticultural Society's Show on July 8th instead of on June 24th as formerly announced. We are further requested to state that as there was no competition at the Show on May 27th for Messrs. Sutton & Sons' prizes for six dishes of Peas the same prizes will be offered on July 8th. The restriction as to varieties has been withdrawn.

—— We notice that Messrs. Webb & Sons, Wordsley, Stourbridge, offer special prizes for the best collections of vegetables—eight distinct varieties, to include Webb's Improved Ashleaf Potato and Webb's Perfection Pea. First prize, 21*s.*; second prize, 14*s.*; third prize, 7*s.*—to be competed for at the Royal Oxfordshire Horticultural Society's Show on June 17th.

—— As the gardens of James McIntosh, Esq., at Duneevan, Oatlands Park, Surrey, are justly famed for the fine collection of RHODODENDRONS, and as visitors are usually numerous at this period of the year, it may be usefully stated that the shrubs will be in beauty in about a week from the present date. In consequence of the dull and wet weather that prevailed last summer the display will perhaps not be quite so profuse as usual, but the trusses promise to be exceptionally fine, and as all the best varieties in cultivation are included in the collection the garden will afford a great treat to admirers of these beautiful evergreens. Liliums, which are grown so extensively in the Rhododendron beds, have not received injury by frost, and the plants constituting the excellent collection under glass are looking extremely well. Fruit prospects at Duneevan are very good, the trees being laden with blossom; and the best varieties of Zonal Pelargoniums, which have been flowering throughout the winter, are flowering still. This garden, though not large, is a pattern garden for taste in arrangement and high keeping, being both cherished by the owner and ably managed by the gardener Mr. Taylor.

—— A PRETTY stove Thymelaceous plant is DAIS COTINIFOLIA, but rarely seen even in large collections, and yet it is more deserving of cultivation than many plants that occupy our houses. The leaves are opposite, obovate, and dark green; the flowers are hypocrateriform in shape, of a bright pink colour, and are borne in terminal umbels. The fragrance is very pleasant and resembles that of the common Scabious, but is not quite so strong. This plant succeeds in a compost of peat and loam, with a little sand. It was introduced from the Cape of Good Hope in 1776, and is now flowering in the Palm house at Kew.

—— In Messrs. SUTTON & SONS' trial nursery at Reading Calceolarias may now be seen in perfection of colour and healthy vigour. One small house contains over 250 compact and sturdy plants, their colours ranging through every conceivable shade of red and yellow, the blooms large and finely formed, and the trusses good. In some of the varieties the colour is most beautifully laced or reticulated, being very distinct from the blotched or spotted forms. We noticed several plants bearing flowers over 3 inches across, one with charming light yellow blooms being especially attractive. That fine dwarf variety Suttons' Little Wonder was in its prime, several of the plants not exceeding 7 inches in height, with large heads of brightly coloured and distinct flowers. Gloxinias were superb in colour, size of bloom, and free growth. Several varieties were most richly coloured, the drooping leaves entirely concealing the pots. Primulas were nearly over, but Ruby King still retained its beautiful and remarkably distinct blooms. Many excellent Violas were blooming in the open ground. The general condition of the plants reflects great credit on the management. A visit to the enormous seed establishment of this firm is something to be remembered. The admirable system, everywhere evident, and the great extent of the buildings defy description.

ROYAL HORTICULTURAL SOCIETY.

POPULAR FLOWER SHOW.—JUNE 2ND.

If we take a retrospective glance at the nature of the enjoyments of the people we must admit, and the admission is a gratifying one, that a marked improvement is manifest. A quarter of a century ago holiday times were characterised by rough revellings, but a change has been gradually effected, and the public mind has become educated to enjoy pleasures of a more quiet, refined, and instructive nature. This marked improvement in the national taste is worthy of every encouragement; it is meet, therefore, that the Royal Horticultural Society should take a prominent part in contributing to the pleasures of the great mass of holiday seekers by providing for them a floral display at a time, in a place, and under such conditions that it can be enjoyed in the most convenient manner.

It was a happy idea that led to the inauguration of such shows as the one under notice, and it was meet too that the metropolitan public should not only have the privilege of admiring the shows but should at the same time be encouraged to share in producing them. The prizes offered for humble cultivators, including children attending elementary schools, cannot fail to incite a love for flowers which cannot be too widely disseminated. It was very appropriate also that in a Show of this kind the London florists—probably the best growers of window and decorative plants in the world—should also be invited to compete for medals and other prizes provided in the schedule. It is further extremely gratifying that the Council of the Society has received such splendid aid from nurserymen and professional exhibitors in rendering the Shows attractive. By the combined efforts of the different classes of exhibitors referred to a floral display has been produced such as never before was seen at the nominal charge of 2*d.* The great marquee was quite filled with groups of plants of the greatest excellence as regards culture, and which, arranged as they were with great taste, had a singularly beautiful effect. The grand Roses of Messrs. Turner, Paul, and Veitch, the magnificent Clematises of Messrs. Jackman, the miscellaneous collection of flowering plants from Messrs. B. S. Williams, Cutbush, and Osborn, the fine-foliage plants from Messrs. Laing and Mr. Rann, gardener to J. Warren, Esq., which gained high honours last week, were not only permitted to remain but had been "freshened up" for the present occasion. These with an extensive and excellent display from Chiswick, with the grand market groups, formed an exhibition of great excellence and rare beauty.

Twelve classes were appropriated to the London florists' productions, and the prizes offered ranged in value from 10s. up to ten guineas, the competition being close in most of the classes. The groups were excellent, and Pelargoniums, Fuchsias, and Musk were well represented, but Mignonette and Stocks were scarce and of only average merit.

For an effective group of decorative plants there were three entries, Mr. John Wills of South Kensington receiving the first prize for substantially the same group exhibited at the great Show last week, with the addition of a few pyramidal Azaleas. Messrs. Hooper & Co., Covent Garden, were second with an elegant arrangement of Pelargoniums, Crotons, Begonias, Caladiums, and Hydrangeas, fringed with Selaginella. Mr. Aldous, florist, Gloucester Road, was placed third with a large collection of Spiræas, white Stocks, Caladiums, and Ericas, brightened by a few Pelargoniums. In the class for a group of plants in flower Messrs. J. & J. Hayes, Edmonton, staged a most attractive group, composed of Spiræas, large pink and white Hydrangeas, Ericas, Pelargoniums, Fuchsias, &c., with a background of the double Deutzia scabra, and rendered very striking and pretty by freely employing dark blue and crimson Cinerarias interspersed with the other plants. The first prize was deservedly awarded. Mr. John Reeves, Acton, was second with a compact, bright, and excellent group; Mr. Edward Sawyer, The Hyde Nurseries, Edmonton, being third with a collection including some very fine Hydrangeas.

In the class for a group of fine-foliage plants there were only two exhibitors, Messrs. Hooper securing the first prize with a large and handsome corner group of Crotons, Palms, Caladiums, Dieffenbachias, and Adiantums. Mr. John Reeves received the second prize for a small collection fringed with Adiantum cuneatum.

In the class for one hundred show Pelargoniums there were four competitors. Messrs. Hayes were first with a large collection of plants in great variety. Mr. Reeves was somewhat strangely placed second. Mr. W. Brown, Brent Nurseries, Hendon, was third. The best-cultivated plants were undoubtedly those of Mr. Reeves. They were in 4½-inch pots, the plants being 18 inches in diameter and perfectly furnished with grand foliage and flowers. This class was not carefully judged, or the awards would have been different. Messrs. Hayes secured the first prize for one hundred Zonal Pelargoniums with a large group of Vesuvius and a double pale pink variety, the only other collection being judged unworthy of award.

In the class for one hundred Fuchsias Messrs. Hayes were again first with healthy vigorous plants freely flowered. Mr. W. Brown was second with plants of medium size, but in excellent condition, the flowers being finer than those in the premier collection. Musk was well shown, and for fifty pots there were four exhibitors, Messrs. Hayes taking the premier award for a collection of extremely good plants of Harrison's Giant bearing fine flowers. Mr. G. Tebbutt, The Vale Nursery, Chelsea, was next with the same variety, and Mr. W. Brown third. Mr. Reeves was the only exhibitor in the classes for Stocks and Mignonette, and secured the first prize in each class.

In the class for miscellaneous exhibits Mr. G. Tebbutt obtained a bronze Banksian medal for a group of fifty Lily of the Valley, and Messrs. Dick Radclyffe were awarded a silver Banksian medal for an artistic fountain and rockery. Mr. John Seabrook, Ponders End, Middlesex, exhibited plants of a new Pelargonium John Bright, which was highly commended. The flowers were of medium size, neatly formed, and bright warm scarlet in colour, the upper petals having a dark blotch near the base.

In the cottagers' classes the improvement on last year was very noticeable. In the class for a collection of plants grown in London within a radius of three miles from the General Post Office, Mr. R. Oastler, 7, Sun Street, Finsbury Square, deserves honourable mention for his first-prize collection composed of Ferns, Musk, Geraniums, Lilies, Sedum Sieboldi, a Rose, Hydrangeas, and Strawberries in pots, all healthy considering that they were real London-grown plants. The same exhibitor was first in the class for the best specimen plant with a large healthy Fuchsia. The exhibits in the class for a group grown within eight miles of Charing Cross were decidedly highly creditable; Mr. E. Hammett, 1, Blizzard Cottages, Fulham Road, being deserving of high commendation for the first prize-arrangement—a design in four tiers wrought in cork 4½ feet long, 2½ wide at the base, and 3 feet high, planted with Ferns, Lycopods, Lysimachia, Geraniums, Tradescantias, &c., the apex containing a good plant of Dracæna terminalis. The other exhibitors—Mr. J. J. Linington, 20, King's Road, Chelsea, and Mr. J. Smart, 41, Arthur Street, Chelsea, securing the remaining prizes with admirably filled and attractively made window boxes. In the class for the best window plant grown for more than twelve months by the exhibitor, Mr. J. Sharpe, 13, Marlborough Road, Chelsea, had the place of honour with a healthy green Dracæna, D. nutans, 4 feet in height. The same exhibitor won the bronze Banksian medal in the miscellaneous class with an aquarium and fountain. A super of honey was exhibited in this class.

In the class for a general collection of garden produce the prizes went to Mr. E. Cane, 3, Stevens Buildings, Ealing Dean, and Mr. Smart, their collections being great improvements on those of last year. The competition in the class for bouquets of wild flowers by children attending the elementary schools within a radius of eight miles from Charing Cross was very encouraging, eleven bouquets being staged, and besides the first, second, and third prizes the Judges were fully justified in granting two extra prizes in the class, preference being given to well-arranged and medium-sized bouquets. A bronze medal was also deservedly awarded to Mr. Joseph Cornish, 40, Great Tower Street, City, for a tasteful and well-arranged Fern case. The exhibits were arranged on a table in the long tent, and were seen to much better advantage than as displayed on a grassy bank in the large marquee as they were last year.

At one end of the long table referred to the first-prize bouquets from Messrs. Ponsford & Sons, Brixton, attracted much notice, as also did Mr. Boller's grotesque collection of Cactuses at the opposite end. Nearly the entire length of one side of the table was filled with plants from Chiswick—well-grown Zonal and Ivy-leaved Pelargoniums, Primula japonica, and Azaleas, the finest plants in 5-inch pots that have perhaps ever been staged; some of the heads were 18 inches across, and the flowers 3 to 4 inches in diameter. The margin of this fine display demands notice—namely, a line 40 yards in length of alternate pots of Selaginella denticulata and Ionopsidium acaule, a simple and charming arrangement that was greatly admired. Mr. Symonds's improved model of his patent automatic ventilator, worked by electricity, was on view in this tent, and was closely examined by the visitors. Mr. Jennings, the Assistant Secretary, and Mr. Barron, the garden Superintendent, laboured assiduously in rendering the Show what it undoubtedly proved—a highly satisfactory and successful one. Owing to rain falling almost throughout the day the attendance was not nearly so large as last year, the number of visitors on this occasion being 8071.

SUNDEWS.

THE genus Drosera, together with its ally Dionæa, has received considerable attention during late years on account of the carnivorous propensities exhibited by the different species—in fact, the family in which it is included might fairly be styled the vegetable carnivoræ. Considerable discussion has taken place concerning the benefit derived by the plants from their meat diet, some maintaining that it is of little real nutritive value, while others adopt the view that the nitrogenous substances absorbed by the leaves of these plants have considerable effect on their general luxuriance. In the case of the common Sundew Mr. F. Darwin has experimentally proved the latter opinion to be correct. But the peculiarities of the Droseras are not the special object of this article, for we purpose noticing the elegance and beauty of some of the species as inmates of our cool houses.

The genus is a small one, containing about twelve species, found growing in swamps and bogs in Australia, North America, Cape of Good Hope, and Britain, and distinguished by their leaves being covered with red glandular hairs, upon the points of which globules of a clear, viscid, and acrid fluid are produced, giving the plants the appearance of being covered with dew, and hence the name Sundew. When the sun is shining the small dewdrops glisten and sparkle like so many diamonds, rendering the little plants extremely attractive.

Some seven or eight species are in cultivation, all of which are perennials and easily managed. The pots intended for the reception of the plants should be well drained with potsherds, then partly filled with peat and finally a layer of live sphagnum, in which place the plants and stand the pots in saucers of water. Seeds may be sown in pots prepared in a similar manner, and as the seeds very quickly lose their vitality they should be sown as soon as possible after ripening. A greenhouse temperature is suited to the requirements of the plants, but, as might be supposed from their native habitat, they need a moist atmosphere and a constant supply of water at the roots.

The species are all more or less pretty and deserving of cultivation, but we will briefly describe some of the best, commencing with the two British species—Drosera rotundifolia and D. longifolia (intermedia). The leaves of the former have short broad petioles and roundish blades, with an abundance of reddish hairs of different lengths, the outermost being the longest. The leaves lie flat on the surface of the moss, forming a rosette-like plant; flowers white. The latter has leaves with narrow petioles and blades much larger than the last-mentioned, but similar in other respects; flowers whitish red. D. capensis, from the Cape of Good Hope, has narrow leaves about 2 inches in length, thickly covered with long red hairs. D. c. major is a much larger plant, with leaves 4 inches long. D. filiforme, introduced from New Jersey in 1811, is the most

delicate and pretty of all, with extremely narrow leaves 3 or 4 inches in length; flowers purple. A little gem. D. spathulata, introduced from Tasmania in 1860, has leaves 1 to 1½ inch long, of the form indicated by the specific name, the habit of the plant being similar to D. rotundifolia. D. dichotoma (binata), also a native of Tasmania, is the largest of those in general cultivation. The leaves have very long petioles, the blade being divided into two linear lobes, which are very thickly set with bright red hairs. A very fine specimen of this plant was recently exhibited at South Kensington by Mr. Wills, which exceeded a foot in height and diameter.

In few plants do we find so much elegance combined with botanical interest as in the Droseras, and there is no lover of plants that could fail to admire them from one or both points of view. We recently saw a very good collection of these plants at the Pine Apple Nurseries, where their merits can be seen to the best advantage.—LEWIS CASTLE.

FLOWER FARMING.

WE extract the following from Dr. Schomburgk's excellent report of the Adelaide Garden and Government Plantations in 1878:—

If we consider that British India and Europe consume about about 150,000 gallons of handkerchief perfume yearly, and the English revenue from eau-de-Cologne alone is about £8000 a year; that the total revenue from imported perfumes is estimated at about £40,000, and that one great perfume distillery at Cannes in France uses yearly about 100,000 lbs. of Acacia flowers (Acacia farnesiana), 140,000 lbs. of Rose flower leaves, 32,000 lbs. of Jasmine blossoms, 20,000 lbs. of Tuberose, together with a great many other sweet herbs, we may judge of the immense quantity of material used for perfume.

Most of the flowers which provide the material for perfumes grow most luxuriantly with us—viz., Mignonette, Sweet Verbena, Jasmine, Rose, Lavender, Acacia farnesiana, Heliotrope, Rosemary, Peppermint, Violets, Wallflower, Laurel, Orange, and the Sweet-scented Geranium. I may say that these plants thrive probably in greater perfection here than in any part of the world. No doubt South Australia should be a perfume-producing country. We see flourishing here some of the most valuable scent plants, and even some of our native plants will yield a valuable scent. But two things are needed to encourage the enterprise. First, if the scent is manufactured in South Australia, freedom of the still, so as to license distilling in vessels of less than 25 gallons capacity; and, secondly, the *bonâ-fide* advertisement of a capitalist manufacturer that he will buy any quantity of specified flowers, leaves, roots, or plants at a marketable price.

To show the value of perfumes to the countries adapted for their production, the following is compiled from the publications of Piesse & Brande:—

One acre of Jasmine plants (80,000) will produce 5000 lbs. of flowers, value 1*s.* per lb. = £250.

One acre of Rose trees (10,000) will produce 2000 lbs. of flowers, value 9*d.* per lb. = £75.

One acre of Orange trees (100) at ten years old, 2000 lbs. of flowers, value 6*d.* per lb. = £50.

One acre of Violets, 1600 lbs. of flowers, value 2*s.* per lb. = £160.

One acre of Cassia trees (Acacia farnesiana), 302 at three years, 900 lbs. flowers, value 2*s.* per lb. = £90.

One acre of Geranium plants, 16,000 to 40,000 lbs. leaves, producing 2035 ozs. of distilled otto @ 5*s.* per oz. = £200.

One acre of Lavender, 3547 giving flowers for distillation, value £30.

WORK FOR THE WEEK.

FRUIT HOUSES.

Vines.—Late varieties of Grapes in flower must have a constant circulation of dry warm air and a temperature of 70° to 75° at night, rising to 85° or 90° with sun heat, as without this Lady Downe's, West's St. Peter's, &c., do not set well. Thin out the berries freely as soon as they are set; but this in the case of the shy setters must be confined to the removal of the smallest and imperfect berries in the first instance, deferring the general thinning until the properly fertilised berries can be determined by their free swelling. There must not be any deficiency of water at the roots, therefore afford liquid manure copiously after the Grapes are thinned and swelling, or a sprinkling of guano may be given over the border and washed in with tepid water. Outside borders, if the weather be dry and the soil light, should be well watered, employing liquid manure at a temperature of 85° to 90° if the Vines are carrying a full crop and are not very strong. It is not possible to give Vines too much water when in full growth provided the borders are well drained. Maintain a pure warm atmosphere in houses where fruit is swelling, damping the floors, borders, &c., two or three times a day, well damping down at closing time, and again before nightfall. Although fires cannot be dispensed with at night much may be done in economising fuel by closing early in fine afternoons, but it must be accompanied with plenty of atmospheric moisture. Do not allow the laterals to grow so as to crowd the principal leaves, but keep them well in hand, although where there is space they may be allowed to extend, yet not to such an extent as to necessitate their removal in great quantity later on. Where Grapes are ripening allow a constant and liberal supply of rather dry warm air, and do not neglect to afford a good watering, and if a mulching of short litter be applied it will tend to promote a more equable moisture at the roots. Early houses which have been cleared of ripe fruit should have the foliage thoroughly cleansed of dust and red spider, employing tepid water, and on no account allow the borders to become dry, but afford water to the inside borders as necessary to maintain the soil in a moist condition, keeping the foliage clean and healthy to the last that it may aid in the proper development of the fruit buds for next season. The leaves being fresh and clean keep the laterals in check by pinching, yet if there be anything defective with the principal foliage a little more freedom may be allowed to the laterals. Muscats and Lady Downe's completing the stoning process must be watched in hot bright weather, and in case of scalding air must be admitted more freely for a fortnight or until colouring commences, when all danger will be over. Even Hamburghs, &c., are being scalded this season, which can mostly be remedied by a bountiful supply of air, and a chink of air left on constantly at the upper part of the house. Where the Grapes are ripe keep the Vines free from lateral growths, and the houses cool and well ventilated; but do not allow an extreme dry atmosphere or the border to become dust dry, giving water if necessary to keep it moist, and mulching to prevent the surface cracking. Vines in pots should have the leading shoots stopped when from 8 to 9 feet long, and the laterals or sub-laterals stopped at one leaf as produced. Supernumeraries in recently planted houses should also have the leading shoots stopped at the length indicated for pot Vines—that is, those intended to fruit next season, the laterals and sub-laterals being closely pinched, but the permanent canes may be allowed to make all the growth possible, as well as pot Vines not intended to fruit next season. Young Vines after they become established should be encouraged with plenty of water at the roots and abundant atmospheric moisture, closing the house early on sunny afternoons so as to husband sun heat and save fuel.

Peaches and Nectarines.—Hale's Early makes a capital succession to Early Beatrice and Early Louise, and is a much finer fruit, being followed by Early York, which precedes Royal George (still the most certain kind for forcing) by about a fortnight, also Noblesse. Dr. Hogg closely follows Early York, preceding Royal George some ten days, and appears to be a free setter; fruit large and beautiful. Lord Napier Nectarine comes in about ten days earlier than Hunt's Tawny, superseding it, and affords a first-rate prelude to Elruge, being three weeks earlier. Admit plenty of air to the ripening fruit in the daytime, and at night also if a prolonged succession of fruit is required. When the fruit is all removed resume syringing to free the foliage of dust and red spider. The borders must be maintained in a thoroughly moist state, as it is important that the foliage be kept healthy as long as possible. If the earliest fruits have been taken from trees in pots the trees must be continued under glass until the buds are well developed. Place the trees outdoors after the weather becomes more settled, assigning them a position in the full sun, the pots being plunged in ashes. Trees on trellises after fruiting should have the wood which carried the fruit cut away to the shoot at its base for next year's fruiting, excepting those needful for the extension of the trees; and if the trees are too full of wood thin well so as to admit light and air to the shoots, and thereby insure the thorough ripening of the wood. No artificial heat will now be required, except in very dull weather, when it will be necessary, especially where the fruit is ripening, to admit of a free circulation of air. Remove any leaves that shade the fruit too much, so that it may colour perfectly at the ripening period. In the succession houses the tying-in of the shoots must be regularly attended to, stopping the laterals at the first joint, and any shoots except extensions stop at 12 to 14 inches. Shoots retained level with or past the fruit to attract the sap should be stopped to one or two joints at each break. Syringing must be vigorously followed up morning and afternoon to keep red spider under, and the inside borders attended to frequently with water. Admit air early in the day, as with large panes of glass the sun often acts so powerfully on the foliage as to scorch it, unless air has been previously admitted. Do not delay thinning the fruit in the late houses after it attains the size of a walnut; and it is better to err on the safe side and retain too few rather than too many. In late

houses mildew sometimes makes its appearance, and should be kept in check by dusting with flowers of sulphur; and if white specks appear on the fruit sulphur must be rubbed on them without delay.

Cucumbers.—Look over the plants every week, removing all weakly and exhausted growths, all deformed fruit, and bad leaves, stopping the shoots at one or two joints beyond the fruit, or at the fruit if the space be restricted, keeping up a succession by replacing the exhausted growth with fresh shoots, and avoiding overcropping. Supply liquid manure liberally twice a week, earthing up the roots from time to time as may be required. Fires will still be necessary at night to prevent the temperature falling below 65° and to maintain it at 70° to 75° by day, advancing with sun heat to 85° or 90°. Shade only to prevent flagging, but by maintaining a good moisture in the house shading will seldom be necessary, except with lean-to's facing south, which are the worst houses possible for summer work. Plants in frames will still require night coverings as the nights are anything but warm, closing early in the afternoon but not so as to cause the temperature to exceed 90°, sprinkling overhead at closing time and watering two or three times a week, avoiding excessive watering as it is certain to result in the fruit damping-off or becoming stunted.

Strawberries in Pots.—The late plants are more liable to mildew than the earliest forced, which mostly arises from the drier atmosphere and failing to syringe them after the fruit is set and swelling, as the Strawberry blight or mildew is not the result of a warm, confined, and moist atmosphere, but of droughts, and it succumbs to water, besides the syringing assists the swelling of the fruit. The syringing should cease when the fruit is advanced in ripening. If it be desired to retain any of the forced plants for fruiting in autumn some of those now being cleared of fruit should be retained for the purpose. The very best for the purpose are Sir Harry, Vicomtesse Hericart de Thury, and President. The earliest forced plants are not nearly so good as those from the April and May fruiting plants, which are more vigorous. They should be gradually hardened off by placing them in a cold house or frame for a few days, though any sheltered position after this will suffice, not allowing them to suffer for water; and when hardened-off any that are in small pots may be shifted into a larger size, or those in large pots may have the balls reduced and be returned to the same sized pots. The plants should be placed on ashes on the north side of a wall, duly watered, and sprinkled overhead every afternoon, which will cause them to start growing freely, and when the plants are well furnished with roots they should be placed in an open situation and be well supplied with water, where they may remain until the cold and wet necessitates their removal to more suitable quarters. In favourable autumns fine fruit may be obtained by placing the plants in a sheltered sunny situation in 4-feet beds with 2-feet alleys between, putting three rows of plants in a bed 15 inches apart, the outer rows 9 inches from the sides of the bed, rendering the soil firm about the balls, and giving a good watering. Keep the plants clear of weeds and runners, and after the early part of September place a plant protector 4 feet wide over each bed and admit air moderately, trussing-up the fruit to bring it to the light. In most localities autumn fruit is more certain from plants in pots, which from their portability can be accommodated with positions suitable to the swelling and ripening.

FLOWER GARDEN.

The weather has undergone a desirable change, the wind being westerly accompanied by rain, which has made it favourable for bedding-out. One of the greatest errors of modern flower gardens is their extreme stiffness and flatness, with too much intricacy in arrangement, which require close scrutiny to comprehend the arrangement, having at a distance a matted appearance and a lack of clearly defined lines of colour. To obviate the monotony of level surfaces introduce a few tall-growing plants, such as Palms of the greenhouse kinds, Dracænas, Yuccas, Acacia lophantha, Melianthus, Aralias, &c., which improve formal arrangements and add wonderfully to the effectiveness of stiff designs by imparting grace and elegance. To prevent injury from winds all tall-growing plants should be staked as soon as planted; indeed, all subtropical plants should have sheltered situations and be securely staked. Herbaceous plants are often neglected in thinning-out and tying-up the growths, which should be attended to in good time so as to allow the shoots to attain full development. Sow hardy annuals for late flowering, also Mignonette and Sweet Peas. Most kinds of biennials and perennials may yet be sown, the earlier the better. Dahlias should be planted out in rich soil, tying them to stakes, and also Hollyhocks, seed of which may be sown and the seedlings raised in heat and planted out. Insert cuttings of double Wallflowers, Rockets, and Sweet Williams under handglasses, and shade them. Keep a sharp look-out for caterpillars on Roses, and for aphides, washing for the latter with tobacco water, handpicking or squeezing for the caterpillars. Well mulch the ground about the plants after the buds show, and water copiously if the weather be dry. Let there be no delay in planting Stocks, Asters, &c., as soon as they become ready. Mow frequently, and keep the edgings trimmed and the walks well rolled and free of weeds.

PLANT HOUSES.

Greenhouse.—Nothing taxes the power of the plant so much as the formation of seed, hence the necessity of removing the seed pods as soon as the flowering is over, which if neglected in the case of hardwooded plants until the seeds are formed has a disastrous effect. Lose no time, therefore, in removing the decayed flowers, at the same time shortening any irregularities of growth. Epacrises, Cytisuses, and Acacias should be pruned into shape, but such as are of comparatively small annual growth must merely have the straggling growth removed. Azaleas requiring larger pots should be shifted shortly after flowering, as they will then be making roots freely; and although they succeed better in smaller pots for years than many hardwooded plants, yet cramping small plants at the roots seldom results in fine specimens, as they become stunted in growth, flower profusely, and die. Good fibrous peat is the only suitable compost, with about a sixth of crystal sand. The new soil must be made quite as firm as the ball, or the water will pass through it without wetting the ball where the roots are. Not only Azaleas but many other kinds of plants that form solid masses of roots die from light potting. Plants making growth should be sprinkled overhead morning and afternoon, and have shade from bright sun to prevent the leaves from becoming brown, otherwise the more light the plants receive the more solidified will be the wood and the prospect of flowers. Camellias in full growth will be the better for a little extra warmth and plenty of moisture, especially at the roots, with shade from powerful sun; any weakly plants must not be watered too much, or they will not add to their roots, but will very likely lose the few they have. Any early plants that have set their buds should be removed to more airy quarters, and if potting be contemplated it should be done before the buds are at all large, or in all probability a check will be given likely to cause them to drop. Show, Spotted, Regal, and Fancy Pelargoniums should be closely scanned for aphis before they come into flower, and if there be the least trace fumigate, for to do so when the plants are in bloom is to cause the majority of the petals to fall off. Assist plants in flower, as well as those that have been stopped for late flowering, with weak liquid manure. Cuttings of Zonals intended for winter flowering should be inserted, also Heliotropes and Abutilon Boule de Neige. Chrysanthemums should receive their final potting at once, employing good turfy loam with about a fifth of well-rotted dung and a dash of bone dust, with sand in proportion to the nature of the loam. In addition to the one large crock over the hole, half-inch bones may be advantageously employed for drainage. Place the pots on ashes in the full sun and sheltered from winds, never allowing the plants to become dry.

FLORISTS' FLOWERS.

Auriculas.—As the general practice amongst growers is to repot at this season, and as we are in the midst of it, a few hints may not be unacceptable to those who grow these beautiful flowers. Opinions used to be much more divided than they are now as to the correct time for this operation, some deferring it until August, because they thought that early potting encouraged autumn blooming, and that when potted in May or June they had too long a period to remain in the same compost; but, at any rate in the south of England, it has been found, owing to various causes, better to repot at the earlier time. The first point to be particular about—indeed on which the growth of the plant depends more than anything else, is the quality of the loam; good fibrous loam, such as is to be had from Epping Forest, or the top spit of a pasture where the soil is good and decayed, is the most desirable. The best we ever saw used was gathered on a mountain where the pasture formed a thin layer of about 2 inches on the rocky limestone soil. The next important point is thorough drainage; a good piece of broken pot or a hollow oyster shell over the hole, and then a good supply of broken pots, and on the top of this a piece of sphagnum to prevent the soil washing down amongst the pots. Auriculas will bear a good deal of frost, but they cannot stand damp. The compost we use is three parts loam, one leaf soil, and one well-decayed cow dung, sifting only the leaf soil, as sticks and other extraneous things are apt to get mixed with it, chopping the loam and cow dung, and incorporating all well together. Care must have been taken that the materials used have not been exposed to the wet, as this is apt to wash all the good out of them. In potting care should be taken that the pots are clean, and that too large pots are not used. A pot 4 inches across inside the rim is a good size for most full grown plants; a few may take a size larger, but there is less risk of stagnation about the roots with a pot a little too small than with one a little too large. The plants should be shaken out of the soil in which they have been, the tap root cut where it has grown too long, and the roots generally shortened. When the pot has been about three-quarters filled with the compost the plant should be placed on it, the roots spread out evenly over it, and then filled in. Rather firm potting is best, for it prevents the water running away so quickly in dry weather, and if the drainage be good there is no fear of its remaining too long in the soil. When the plants, or any number of them, have been potted they should be placed for a few days in a close frame after being watered, the frame being in a position facing the north,

so as to keep them cool during the summer months. They should then have all the air they can, and be kept clean; the larger leaves will gradually decay, and should be taken off as they become yellow. Green fly should be watched for and brushed off, and snails guarded against.

TRADE CATALOGUES RECEIVED.

Ant. Roozen & Son, Overveen near Haarlem, Holland.—*General Bulb and Plant Catalogue.*

Stuart, Mein, & Allan, Kelso.—*General Plant Catalogue.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

AURICULAS (*G. S.*).—You had better purchase named varieties, and from these you can if you choose save seed, and by judiciously fertilising you may succeed in raising varieties of merit. The plants should be potted at once in clean, rather small, and well-drained pots, employing a compost of about three parts of fibrous loam and one part of very much decayed manure, the whole being incorporated with crushed charcoal so as to keep the compost porous. The plants should be placed in a frame by themselves, and it may be kept rather close for a short time until they become established in the fresh soil, when air must be admitted freely. In potting most of the soil may be crumbled and shaken away. The main stem-root in old plants may be growing too long, or the base may be turning black and decayed. In either case shorten back to where it is sound, and daub the part cut with charcoal dust, and also any cuts of offsets from the stem. Shorten but sparingly the longest fibres if fresh. Remove all in the least sickly or decayed. In draining the pot place the draining crock with its curved side over the hole. If there is from 1 inch to 1½ inch of drainage above properly placed, the smallest uppermost, and covered with a sprinkling of moss, there will be no clogging of the drainage. Place some compost in the pot, hold the plant in it, regulate the roots all over the space, and shake the soil among them, settling it by striking the pot on the bench, and then firm the soil a little with the fingers, and especially near the collar of the plant. Place the pots on a raised platform on rough coal ashes beneath the lights of the frame, which should be set with a north-east aspect; water with a fine rose, and keep them rather close and shaded in the morning for a fortnight or three weeks. As soon as fresh growth is proceeding the shading may be dispensed with. More air may be given at first, and then the sashes may be taken off completely; the frame being elevated on bricks that the air may have free access all round the pots. Let waterings be duly given, the surface soil frequently stirred, decayed leaves removed, and slugs and worms hunted out. If the position is at all exposed to the midday or afternoon sun shading will be required in the hottest hours. Mild warm rains will be beneficial, but heavy rains must be guarded against either by canvas or glass.

CULTIVATION OF DIONÆA MUSCIPULA (*Idem*).—This little plant requires a mixture of peat and live sphagnum in a shallow pot, providing a good drainage of potsherds, the plants being placed on the surface of the moss. The pot should stand in a pan of water and be covered with a bellglass, and the best position for it is the cool end of a stove or Orchid house, being careful not to allow it to become dry.

GERANIUMS (*O. G. R.*).—We presume you require the plants to flower in pots; if so, pot them firmly in turfy loam and very much decayed manure, two-thirds of the former to one-third of the latter, and place them on a shelf near the glass in a light well-ventilated house or in a cold frame. Water them carefully until they are established in the fresh soil, and then more copiously; and pinch out the leading shoots as is necessary to secure bushy plants. They will grow more luxuriantly if planted out, but will not flower nearly so profusely as if grown in pots.

LADY MIDDLETON CARNATION (*G. M. W.*).—See reply to other correspondents on page 409 of our last week's issue.

AURICULA FRAME (*B. and others*).—See notes in another column. The size of the frame depends entirely on the number of plants to be cultivated. During the summer months the plants thrive admirably in an ordinary frame such as is used for growing Cucumbers, shelves being formed in the frame so that the plants are within 6 inches of the glass. Moveable frames are very useful, as they can be placed in different aspects as may be required to advance or retard the growth of the plants. They cannot be kept too cool during the sultry months of summer.

MELONS OVERLUXURIANT (*A. B. C.*).—The cracking of the stems is probably due to the excessive richness of the soil and the supplies of liquid manure. Withhold the liquid manure and make the soil of the bed very firm, and you will arrest the luxuriance of the plants and thus prevent the fruit cracking as well as the stems. Carrots sown now become quite large enough for culinary purposes. It is of little use dusting plants with lime during the day to destroy slugs, but if you apply the lime at night or about daylight in the morning you will destroy hundreds of the marauders when they are feeding.

EUCALYPTUS GLOBULUS (*G. L. M.*).—Sufficient evidence has been published proving that the tree referred to cannot be depended on for cultivation in this country. Even in sheltered positions south of London scarcely any specimens have survived, while in the northern parts of the kingdom the destruction of the trees has, we believe, been complete.

HARDY PERENNIALS (*A. G.*).—To flower at the end of June, the following, which may be raised from seed, should be sown without further delay in moderately rich fine soil in the open ground, selecting a sheltered situation: Antirrhinum majus vars., *Campanula calycanthema and var. alba, Carnation vars., Chelone barbata coccinea, Delphinium formosum, D. grandiflorum cœlestinum, *Dianthus chinensis flore-pleno, Geum coccineum, G. atrosanguineum flore-pleno, Lathyrus latifolius and var. albus, Lupinus polyphyllus and var. albus, Lychnis chalcedonica, L. Haageana hybrida, Myosotis dissitiflora, Œnothera macrocarpa, Pansy vars., Pentstemon vars., Phlox decussata vars., Picotee, Potentilla double, Pyrethrum double, Sweet William vars., Verbena venosa. Those marked with a star are biennials.

GRAPE BUNCHES CURLING (*Aston*).—It mainly results from unripened wood, the treatment not being such as to maintain the foliage in good condition so as to secure the thorough development of the buds; but it not infrequently results from the roots being in a cold border whilst the house is 20° to 30° higher in temperature. We think the latter is the cause in your case, as the border, after the roots were brought nearer the surface, has been uncovered all the winter. It certainly ought to have been protected with some dry material, such as leaves or litter. We can only suggest that the wood be thoroughly ripened, and that the border be protected in the future during winter. The thick rough glass is not favourable to the ripening of the wood.

AERIAL ROOTS ON VINE RODS (*M. N.*).—No injury will result to the crop or foliage by the removal of the roots proceeding from the rods, but we should remove them gradually, as it is clear that the true roots are not too plentiful, hence Nature seeks to meet the deficiency by adventitious roots on the stems. Despite your dictum that the roots are not due to syringing, we may suggest that the weather has been such as to preclude ventilation, a closer atmosphere having to be maintained than is either usual or desirable.

PRIMULAS AFTER FLOWERING (*Amateur*).—They may be placed outdoors on ashes in a position shaded from midday sun; and the old trusses being removed the plants will flower again in late summer. Our correspondent suggests that the writers to the Journal should always give the county at least from which they write.

PLANTS FOR THE BACK WALL OF A CONSERVATORY (*An Eighteen-years Subscriber*).—Lapageria rosea, L. alba, Habrothamnus fascicularis, H. aurantiacus, Bignonia (Tecoma) jasminoides splendida, and Rhynchospermum jasminoides. For a shaded wall Camellias are very suitable. The Habrothamnuses would be most suitable for the wider spaces.

HOUSE FOR ROSES (*Thos. K.*).—The house as shown in the section will answer perfectly for Roses, means being provided for free ventilation at the upper part of the house, every other light in front being made to open, those at the top opening the full length of the house, the lights being about 2 feet wide.

PANSIES (*H. G. B.*). — *Show Pansies.*—The following properties are submitted by the Scottish Pansy Society: Form.—The outline should be a perfect circle, and free of every notch, serrature, or unevenness, the petals lying close and evenly on each other. Texture.—The petals should be thick, and of a rich glossy velvety appearance. Colour.—In all two-coloured flowers the ground colour (of whatever shade) should be perfectly alike in all the three lower petals, and should be circular and of equal width between the blotch and the belt in the three lower petals. Belting.—The belt or margin should be exactly the same shade as the two top petals, and whether broad or narrow should be of equal breadth throughout, without running into or flushing with ground colour. Blotch.—The blotch should be dense and solid and of circular character, free from all running into or through the ground colour, or the eye. Eye.—This should be bright gold or orange, and solid, without mixing or running into the blotch, and should be exactly in the centre of the bloom. Size.—The larger bloom (other properties being equal) should be the better, but no flower should be considered fit for competition under 1½ inch diameter. Selfs. — Of whatever colour should be of the same shade throughout, in yellow, white, blue, or any other shade, the denser the blotch the better. *Fancy Pansies* are characterised by brilliant colours, those colours, however, not being defined according to the above standard. The flowers are usually very large, but lack the form and substance of petal of the Show varieties. It is of importance that Fancy Pansies have a large dense blotch and solid eye, not mixing or running into the blotch. The blooms sent belong to the Fancy section. We cannot undertake to name varieties of florists' flowers. Probably yours are not named varieties at all.

MABEL MORRISON ROSE (*F. W. D.*).—It can be obtained from most of the Rose-growing nurserymen. We recently observed it in Mr. W. Paul's collection at Waltham Cross.

WINDOW PLANTS (*A Cottager*).—The change of the leaves to which you refer is caused by the atmosphere of your room being drier than that of the houses in which the plants had previously been growing. We anticipated this, and hence advised the very frequent sponging of the foliage to lessen as much as possible the injury which plants usually receive when removed from moist plant houses to dry dwellings. We can only advise you to proceed with your careful treatment of watering and sponging. You may use the water at a temperature of 100°, or slightly warmer than new milk. You had better not repot the plants, at least until they commence growing with some freedom, and mind that the soil does not become too dry. During genial showers they would be benefited by being placed out of doors for a short time, but not when the rain is of a drenching character nor the weather cold. Having become inured to their new quarters your plants will probably now improve and may yet grow freely. For the schedule you require write to the Secretary of the Royal Agricultural Society, Salisbury Square, Fleet Street, London.

INSECT ON PEAR TREES (*F. S.*).—Without seeing specimens of the insect we cannot inform you what it is, and there are no insects upon the leaves sent. The leaves appear to have been punctured in their early stages, and they cannot now be restored to health. As a preventive of further injury we should syringe the trees with soft soap and quassia water, dissolving 2 ozs. of soft soap in a gallon of water, and adding the quassia water made as recommended to "T. H. S." last week on page 409. Syringe the trees thoroughly twice a week.

ANTS IN MELON FRAME (*Ramalho*).—They are very difficult to eradicate. Sprinkle sulphur and tobacco powder freely on the soil where the ants are most numerous.

NAMES OF FRUIT (*W. Picker*).—1, Winter Greening; 2, Dumelow's Seedling; 5, Catshead. The numbers ought to have been attached to the fruit.

NAMES OF PLANTS (*H. W. D.*).—1, Lastrea atrata; 3, Pteris serrulata; 4, Specimen insufficient, but it resembles Pteris umbrosa; 5, Adiantum pubescens; 6, Pteris serrulata cristata. Those are the names of the Ferns, but

we are not quite certain that the numbers are correct; for, being written with pencil on tissue paper, they were nearly illegible. (*A. C.*).—1, Erica mediterranea carnea; 2, Spiræa prunifolia flore-pleno; 3, Omphalodes verna; 4, Pernettya mucronata; 5, Too withered for identification; 6, Kerria japonica flore-pleno; 7, Sedum hispanicum glaucum. (*C. B.*).—1, Amaryllis formosissima (Jacobæa Lily); 2, Diplacus glutinosus Prince of Orange; 3, Pteris cretica albo-lineata; 4, We think is Salvia argentea, but the specimen is not sufficient for identification. (*J. H.*).—Your plants are:—1, Dolichos lignosus; 2, Metrosideros floribunda; 3, Chrysanthemum frutescens; 4, Cuphea platycentra; 5 resembles Acacia falcata; 6, Swainsonia species, but we cannot determine it without flowers. (*T. W. S.*).—It is impossible for us to name varieties of Pelargoniums and other florists' flowers. Besides, if we could have aided you, the flowers had shed their petals to such an extent as to render the identification of the varieties utterly impossible. If you send flowers in good condition to the florist of whom you obtained the plants he would probably be able to name them on comparing them with the varieties in his collection. (*T. Clements*).—Staphylea pinnata. (*F. Taylor*).—1, Platyloma falcata; 2, Asplenium longissimum; 3, Pteris cretica albo-lineata; 4, A Selaginella, but too much drawn for us to recognise the species; 5 resembles Asplenium formosum. (*M. A.*).—1, Kerria japonica fl.-pl.; 2, A Thuja, probably T. Lobbiana; 3, Medicago maculata; 4, Viburnum plicatum; 5, Mespilus germanica. (*Ramalho*).—The Fern was too withered for identification. (*H. Williams*).—2, Alyssum saxatile; 4, Spiræa prunifolia fl.-pl.; 6, Berberis Darwini. The other specimens were insufficient for identification. (*J. M.*).—1, Rhynchospermum jasminoides; 2, Camassia Leichtlini; 3, Tradescantia zebrina; 4, Asplenium marinum; 5, Ficus elastica. (*J. C.*).—1, Cardamine pratensis; 2, Hyacinthus nutans; 3, Viburnum Opulus; 4, Leycesteria formosa; 5, Ribes aureum; 6, Veronica serpyllifolia. (——).—The one with the larger leaves is Eupatorium riparium; the other is Pernettya angustifolia. (*H. Lovejoy*).—Cerasus padus, an ornamental deciduous tree.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

THE SHOEING OF FARM HORSES.

(*Continued from page 410.*)

HAVING given copious extracts from Mr. William Miles's essay on the practical shoeing of horses, we now proceed to make quotations from an excellent article upon the same subject, "The Horse's Foot, and How to keep it Healthy," by George Fleming, F.R.C.V.S., 2nd Life Guards. This we consider the atest attempt to illustrate the combined value and importance of sound healthy feet for horses, and how to maintain them in practical usefulness, including also a description of the structure of the horse's foot. The practical mode of shoeing will be seen to be somewhat different in some important respects from our previous quotations, there being an evident originality about them, and given in very decided language, at once exhibiting the ideas of a highly cultivated intellect supported by a long practical experience.

In describing the horse's foot Mr. Fleming observes, "The hoof itself is a beautiful structure, and bears evidence of design in every part. The wall or crust—the part seen when the foot is placed on the ground—is fibrous, the fibres growing downwards from the coronet to the ground, each fibre being more or less of a hollow tube. The hoof fibres are composed of microscopical horn cells arranged vertically, while the fibres themselves are united into one mass by similar cells laid horizontally, the different direction of the fibre cells and inter-fibrous cells forming a secure bond of union, preventing splitting and fracture, and causing the wall of the foot to wear better and bite the ground sharper. The horn of the sole and frog—the parts which are towards the ground when the horse is standing—is similarly composed of fibres passing in the same direction, and constructed in the same manner, though they are softer and possess other trifling peculiarities. Into the upper end of each fibre of wall, sole, and frog is inserted a fine minute process given off from the living sensitive membrane within the hoof; this process is made up of blood vessels and nerves, and it secretes the horn fibre."

The evils of ordinary shoeing are due to erroneous notions and a desire to make fine work. By the majority of farriers the foot of the horse is looked upon as little if anything more than an insensible block of horn, which they may carve and mutilate with impunity and as suits their fancy. Not content with rasping or chiselling away the most important and essential part of the wall the farrier must needs, to "finish" his work in an artistic-like manner, rasp the remaining portion up to the hair, thus removing the smooth dense surface, which stands pretty much in the same relation to the hoof that the bark does to a tree. A strange notion also prevails among grooms and farriers that the frog should not touch the ground, and if it does it will cause the horse to go lame, hence they take every care that it shall not do so by paring it away as much as possible, or by thickening the heels of the shoe. At the same time there is no doubt that the majority of cases of "navicular disease" and "thrush" are more or less directly due to paring and preventing the frog reaching the ground.

The true principles of shoeing consist in keeping the foot healthy and sound. The wall of the hoof is continually growing downwards, and would grow to an indefinite length if it was not worn by the ground when the horse is in the unshod state. In the shod condition it grows at about the same rate, but the shoe prevents it being worn, and every time the horse has to be re-shod the superfluous horn which has accumulated at the lower border of the wall since the last shoeing has to be removed by the rasp. This, it is strenuously contended, is all that is necessary in the way of rasping and cutting; in reducing the wall to a proper length, and so preserving the natural angle and direction of the hoof, should consist the principal item of the farrier's skill. As a general rule the wall should be lowered to the level of the unpared sole. The sole and frog should on no account be pared or touched by the knife, nor should the heels be "opened." The horny sole and frog unlike the wall do not grow indefinitely, but when they have attained a certain thickness they throw off the superfluous or old horn in flakes or scales. This natural thickness of the sole and frog horn is an absolutely essential condition for the maintenance of the foot in health and its protection from injury; and in proportion as it is diminished by the farrier's knife so the foot will suffer. Not only does the solid horn play a most important part in protecting the sensitive parts it covers from injury, but the semi-detached flakes it is always throwing off render great service, by acting as so many spring shields when the horse puts his sole on stones or hard unlevel ground, and also by retaining wet. They are, in fact, a kind of natural and ever present "stopping," which keeps the horn beneath moist and supple. Every flake on sole and frog therefore is valuable, and though these may appear untidy to some eyes, yet by leaving the sole and frog unpared the farrier is spared some useless and pernicious labour. Whatever pattern the shoe may assume it should not be bevelled on the foot surface, so as to throw the weight on the margin of the foot, and leave a wide space between it and the sole. The upper or foot surface of the shoe ought to be a plane surface, resting alike on the wall and the border of the sole, as the latter is well adapted for weight-bearing, and the more the weight is distributed over the lower face of the hoof the better can the foot perform its functions. This applies more particularly of course to the fore foot; not only does this kind of shoe assist the foot better than the bevelled shoe, but it prevents suction in heavy ground, and gives no lodgment for stones, &c., as well as yielding other advantages of a less noticeable kind. The shoe should be fitted to the outline of the foot. If the wall has been reduced to its proper length the shoe should follow the shape of the hoof, projecting slightly beyond it if anything, so that no horn will require to be rasped from the front of the hoof when the shoe has been nailed on. In fitting the shoe the coaptation between it and the hoof should be as close as possible. This can be readily secured by applying the shoe at a high temperature and for the briefest space of time to the part upon which it is to rest. By this means the inequalities on the horn can be perceived and removed by the rasp, and when quite level another brief application of the hot shoe fuses the horn into a hard level surface, capable of resisting the pressure of the metal during wear. This "hot fitting," as it is termed, is perfectly harmless to the unmutilated hoof, and possesses such great advantages that it is to be commended, because by "cold fitting" it is impossible to obtain such an intimate coaptation; and even if it could be secured the shoe would not remain so firmly attached, as wet softens the end of the horn fibres in contact with the shoe—the shoe loses its original bed, becomes loose, and is cast. These are the general principles which ought to be observed in the management of the horse's foot by the farrier, and it will be seen that they reduce the art of shoeing to an exceedingly simple matter, and abridge the farrier's labour very considerably.

WORK ON THE HOME FARM.

Horse Labour.—This is now required to be so continuous that it is sometimes difficult to decide which tillage should be done first. Tillage upon the land is now being done with so much advantage wherever and whenever it is necessary, that our succession or rotation of crops must be our guide in setting out the daily work for the horses. We will suppose that all the mangolds have not yet been drilled, but that in comparison with Swedish turnips although late sown they are a far more valuable crop, not only in weight per acre but in the various modes and times of feeding. For instance, Swedes are in season for feeding in January, February, March, and April, but mangolds we have often fed our cattle and sheep upon during every month in the year, and we

say that the home farmer ought never to be without some mangold properly secured and stored for use at all times. Take the past month of May to illustrate the value of mangold roots. On many farms in different counties, with a full stock and breeding flock, owing to the severity of the winter having destroyed in many instances a large portion of turnips and Swedes, and in consequence also of the injury done to vetches, trifolium, and other green fodder crops, in numerous cases the sheep have been on the verge of starvation. Enormous sacrifices have been made to maintain the stock after having fed off all the young grass and clovers intended for a hay crop, including also a large expenditure in feeding stuffs, such as linseed cake, cotton cake, or maize, &c., whereas if a good and sufficient quantity of mangold had last year been grown and carefully preserved the stock might have been fed with plenty in the midst of a comparatively famine season.

The season for cutting the field grasses for hay is now close upon us, and the home farmer must be reminded that the grass should not only be cut early but that it should be made in little time, the quicker the better, and any system which will reduce the period of making will also reduce the risk of damage from untoward weather. Hay-making used to be a question of great and continuous manual labour, but it is not so now, except to a small extent; machinery has reduced the hand labour both of men and women to a minimum. The old system of cutting field grass and allowing it to lie with about twice turning until fit to carry may well be abandoned, as it may now be tedded with the hay-making machine whilst it is green—in fact, as fast as it is cut by the mowing machine, in which case the stalks are thoroughly separated and all alike exposed to sun and wind. If the tedding is done daily the hay will not only be fit to carry to the stack several days earlier, but will dry tough and with regularity instead of being dried crisp as when left in swathe, in which case much of the leaf is often lost in the act of carting, ricking, &c. With the assistance of the horse rake, the elevator at the rick, &c., the manual labour is extremely light and easy; in fact, in many districts with which we are acquainted the work never could be done unless assisted by horse labour and machinery.

Hand Labour.—We must again call the attention of the home farmer to the advantage of using screened chalk instead of ashes upon all soils where the turnip crop has been found to suffer from clubbed roots. It often happens if the roots do not club they rot and die off with a kind of dry rot produced from the same cause—the absence of a sufficiency of lime in the soil. Still it would not do to apply lime itself in drilling turnips where any manures containing ammonia are used, because the lime would dissipate the ammonia; but the use of chalk would not do so, but would correct the acidity of the soil and entirely prevent the disease of the roots above alluded to. Our plan is, where the farm is situated near to a chalk pit, to send men, and with a gravel or ash screen to prepare the chalk, bring it home, and keep it dry until required for use.

The sheep stock having finished feeding in the water meadows and rye the trifolium becomes invaluable, as the season for green fodder has been so late and sheep food so scarce that many parties have fed off nearly all the clovers and grasses intended to be cut for hay. The trifolium will be especially valuable if care has been taken to provide a succession of food by growing all three sorts, the common or early crimson-blossomed variety being ready for feeding first, then the second early or pink-blossomed, and last of all the perfectly white-blossomed variety, which may be held over for feeding until the last week in June and even into the month of July for cutting up as green fodder for horses and cattle. The dairy cows should now have attention as to the pastures, for whenever the grass becomes scarce green fodder should be given in the racks; this will not only keep the cows in full milk and enable them to give more of it, but at the same time will do much towards continuing the supply of milk to a later period. The interculture and hoeing of potatoes should now be going on, and continued until they are sufficiently forward for hilling, which is best done with the double-breasted plough; and as all the early sorts, such as the Early Rose, will be making great progress, the hilling should not be too long delayed.

DORKING CHICKENS.—No. 1.

It is interesting to observe the colour when first hatched, and the subsequent growth and development of both form and feather of the different varieties of poultry. We have noted down particulars about most breeds, and hope from time to time to publish them. Novices are frequently alarmed by the dissimilarity between the newly hatched chick and the fully developed bird. Perhaps they see and admire some black breed, buy a sitting of eggs and are horrified at the chicks appearing with yellow breasts, and sometimes even feathering with some white flight feathers. Many an indignant letter has been written on the subject from sheer ignorance.

We always specially endeavour to adapt our hints to beginners, and some queries which have lately been put to us by an anxious purchaser of Dark Dorking eggs suggest the advisability of giving some description of the appearance and growth in the earlier days of Dorking chickens. There is a popular idea that they a very delicate from the age of about ten days to three or four week We have never believed this, and our faith in their hardihood h received much confirmation this season. We have been compell by circumstances to rear our chickens in the roughest fashion a in a very damp place. Instead of at first being placed in she the coops have at once been put out of doors, and in by no mea sheltered situations, yet not a chicken has so been lost. It is tr that none of them are early chickens, yet in April and May th have been exposed to the weather which might well have finis off delicate birds. Earlier in the year, in a warmer place and wi plenty of shelter, we lost all our young Cochins. We have al the opinion of a most experienced fancier who has kept nearly a breeds, but never tried Dorkings till lately on account of th character for being delicate, that he has never known hardi birds or birds which feathered so rapidly. It is true that for th first ten days they require constant feeding to make them fat a strong against the great strain their system has to bear from th extraordinarily quick growth of their feathers. The food we a fe weeks ago recommended as the staple diet for all young chicke should bring them safely through this crisis. Coddling an pampering are not only unnecessary, they do harm. We will nex week speak separately of the different varieties.—C.

CRAMPED CHICKENS.

I see in your "Letter Box" an answer to an inquiry for th cure of cramp in chickens that they require more warmth. I sen you an account of my experience on this point just recently. I had a brood of eleven chickens that were healthy and well until about five weeks old, when one was seized with cramp. I did not attend to it for a day or two until it began to tumble about, when I thought it must be in great pain and perhaps cruel to keep it, as they rarely recover; but remembering that I had seen people stand horses in running streams to strengthen the knees or ankle joints I thought I would try similar treatment for my chicken. I therefore held its feet a few inches below the surface of *running* water for about five minutes twice a day. After two or three days' application the chicken began to move its claws, and a day or two after to try them open on the ground; it has continued improving, and now is running with others apparently quite recovered.—G. C.

DUCKLINGS' FEET.

In reply to "J. M.," we attach but little importance to the sores on the web of the feet. It is not a sensitive part, and it is not uncommon where a number of Ducks run together and are of the same breed, to mark them by holes made in the web of the feet. If there is nothing objectionable in the parents, we then seek for leg-weakness and cramp in insufficient or improper feeding. It does not follow because good and even expensive food is provided freely that birds are properly fed. It must be given regularly in small quantities at a time, and a little variety is also necessary. We have known fowls die of starvation with good barley always before them. We could have advised you better had we known how the ducklings were kept and fed. If at liberty they will find among the grass the change of food they require. If in confinement it must be artificially provided. Few animals suffer more from cramp than Ducks. Not only those that are tame, but those that were reared wild and have since become domesticated. Before it comes on the appetite fails, and there is a craving for drink. The bird drinks incessantly. Death soon follows unless it can be induced to feed. You will have to do with your ducklings as you would with adult birds if they were suffering in a like manner. Get a shallow vessel about 2 inches deep, cut a sod of short-growing grass the size of the vessel, place it in the bottom, put on it some barley or oatmeal and some gravel. Put sufficient water to make the meal float, but not more. Your Ducks will feed. They must not be in a muddy or dirty spot, but in a dry place, the ground covered with straw. As fast as they become convalescent let them out with the hen or Duck that hatched them. While they are crampy they should be under cover at night, and not allowed to be on the grass while it is covered with white frost. If hatched under a hen she and her brood may have full liberty. If under a Duck she should be confined. She drags her young about and keeps them too long in the water.

VARIETIES.

We have received the rules of the Surrey Bee-keepers' Association, which has been established this year under influential patronage, "for the encouragement, improvement, and advancement of bee culture, particularly as a means of bettering the condition of cottagers and other labouring classes, as well as the advocacy of humanity to the industrious labourer—the honey bee." The Association is affiliated with the British Bee-keepers' Association, and their first Show of honey, bees, and bee furniture will, by the kind permission of the Earl of Onslow, be held in

Clandon Park on July 19th. This and all similar associations established for the same laudable object deserve extensive encouragement and support. Mr. E. S. Whealler, The Waldrons, Croydon, is the Secretary of the Surrey Association.

—— A CORRESPONDENT desires to know of any apiarian shows besides that of the British Bee-keepers' Association to be held in the Royal Horticultural Society's Gardens, South Kensington, on July 22nd), that are to be held in London or its vicinity during the present year, and the dates of them.

—— AN American paper publishes the following reasonable hints on poultry:—When you set your hens dust them thoroughly with powdered sulphur, and sprinkle some in the nest; do this again ten days before your chicks are due. Do not stint your young and growing chickens in the matter of food; it does not pay. Keep them growing from the start. Feed regularly all they will eat up clean, and no more. Do not leave food by them, it is waste; and besides your chicks will not forage if there is food within their reach all the time. As warm weather approaches see that your hen house is cleaned; no matter if the work presses. You can manage somehow to devote a half day to a general cleaning-up in the hennery; it will save some hard work next July. If the floor is covered, as it should be, with earth take it out and spread on the field or garden, and fill up with fresh earth. Whitewash inside and out; it will help the looks outside, and sweeten up things inside wonderfully.

—— A WRITER in the *North British Agriculturist*, referring to the selection of a milch cow, recently observed that for quantity of milk and for cheese-making, especially in high and exposed situations, the first place is assigned to the Ayrshire. For these properties, and principally on account of the strong recommendations of American authorities, we would incline to place the Holstein next. Where the best quality, rather than quantity, of milk or gross profit is desiderated the Jersey stands unrivalled; and in the case of the calf being destined, as well as the mother ultimately, for beef-producing, the Shorthorn has no equal. In each breed there are individual animals and strains which lean to, and others which drift away from, milk-producing, consequently skill and attention are necessary to secure the best results; and this applies equally to breeding and selection, although in the former the consequences may be more readily multiplied.

—— WE have received the prize schedules of the two exhibitions of the British Bee-keepers' Association to be held on June 30th to July 7th at Kilburn, and on July 22nd to 24th at South Kensington. We call attention to the fact that foreigners resident in our colonies are invited to compete at both shows without being charged any entry fees. The foreign and colonial classes are a new feature in the schedule for South Kensington. The Kilburn Show is intended to be an international one. We trust both exhibitions will be largely patronised and be rendered highly successful. The Rev. Herbert R. Peel, Abbot's Hill, Hemel Hempstead, is the Honorary Secretary.

—— BRIGHTON SHOW.—Our reporter was informed that all the three prize White Cochin cocks had been bred in Mr. Darby's yards, not all the *third*-prize birds. Also, concerning the first-prize Houdans, for "Mr. Wallace's" stock read "Mrs. Vallance's."

—— A REMARKABLE instance of the utility of the common owl as a destroyer of vermin is recorded by Herr Grote in the Journal of the Hanover Agricultural Society. Last year this gentleman discovered in his garden an owl's nest built in a hollow tree. When first observed it contained four eggs and the bodies of seven field mice. On the following day six of the mice had been devoured and eight fresh ones introduced in their place. On the third day six more mice were added to the stock, and the carcases of seven more were found in a contiguous hollow tree. Day after day the same thing was observed, a fresh supply of mice being constantly introduced. From circumstances which are not specially mentioned, Herr Grote was only able to continue his observations for a period of fourteen days, but within this time the number of mice found in and around the nest was ascertained to be more than two hundred, and in addition to these the wing cases of a large number of dung beetles (Scarabœus stercorarius) were found in the same place. In order to avoid any source of possible error in his computation, the observer took the precaution of marking each day's supply of mice when first noticed, so as to make quite sure that none of the bodies should be counted twice.—(*Farmer*.)

BRITISH BEE-KEEPERS' ASSOCIATION.

MAY I be allowed to invite any of your readers who take an interest in bee-keeping to become contributors to the prize fund which is being raised by the Committee of the British Bee-keepers' Association in anticipation of the two exhibitions of bees, hives, and honey which are to be held (1) at the Show of the Royal Agricultural Society at Kilburn from Monday June 30th till Monday July 7th, and (2) in the Gardens of the Royal Horticultural Society, South Kensington, on the 22nd, 23rd, and 24th of July? We are anxious, if possible, to provide our prizes for the two exhibitions out of a special fund without drawing upon the annual subscriptions of our members, as we expect to have many heavy demands made upon our resources in the development of the country bee-keepers' associations, which I am glad to say are multiplying very rapidly.—HERBERT R. PEEL, *Honorary Secretary, Abbot's Hill.*

P.S.—The following donations have already been made to the prize fund:—The Baroness Burdett Coutts, £7; Rev. Edward Bartrum, £1 1*s.*; T. W. Cowan, Esq., £1 1*s.*; R. R. Godfrey, Esq., £1 1*s.*; F. R. Jackson, Esq., £1 1*s.*; Captain P. E. Martin, 11*s.*; H. G. Morris, Esq., £1 1*s.*; Rev. H. R. Peel, £2 2*s.*

A NEW HIVE.

MR. PATERSON, Struan, well known in Perthshire as a skilful apiarian, has for several years spent most of his spare time in devising means for overcoming some of the practical difficulties connected with bee-keeping. Of late his attention has been specially directed to two points—1st, The material of which his inner shell of the hive should be constructed; and 2nd, The best form of frame, keeping especially in view the increase of his stock, and this with a view to the subsequent increase at the proper season of available super honey.

1. As to the first, Mr. Paterson found that neither of the old materials in general use—viz., straw and board, under any arrangement could be managed so as to exclude damp, and mould in consequence, especially in long-protracted and wet winters. This the experience of nearly every bee-master amply confirms. It then occurred to him that, if any moisture-absorbing material could be employed instead, the end would be secured. His attention was called to plaster of Paris, and after a series of experiments &c., by means of tin moulds, made an oblong hive entirely of this material, formed round it a protecting wall of brick, placed in position the ordinary bar-frames, and then introduced his swarm of bees. The covering was temporarily made of a miscellaneous collection of old cloths and flannels, protected overhead by a waterproof tarpaulin. The bees took to their new abode at once, and their progress was such as to excite the admiration of all who were taken to inspect them. The honey harvest came, and far exceeded that of any other hive in his apiary. But winter drew on, and day by day the result of each visit was increasingly satisfactory. He found that the plaster of Paris walls which in summer were not only perfectly dry but also comparatively cool, were in winter comparatively warm and as dry as a bone. When spring arrived he found the whole swarm in excellent condition, and not a single inch of mouldy comb to be found. On examining the other hive he found that, as before, damp and mould more or less prevailed. Another season passed over with even better results. Winter came again, and personal inspection including thermometrical observation was kept up, and he found no occasion to alter his original judgment. The hives had been put to even more serious tests than he had designed in the upland region where he resides. On two several occasions a terrific storm swept across the district, and during the night his temporary overhead protection was swept away, and to his dismay he found his little favourites next morning in a most pitiable condition—drenched with rain and paralysed with cold. They were soon put to rights as far as possible. The worst was feared; but what was Mr. Paterson's delight to find that in the course of two days, such was the moisture-absorbent powers of the plaster, that no trace of the mishap could be seen. Another winter has passed in safety, and the plaster hive is still the best.

But for general use it is quite obvious that there are serious objections to the above arrangements. The shell of the hive is brittle, and no liberty can be taken in removing it from place to place. Besides, as an article of sale it is for the same reason inadmissible. This difficulty has, however, been quite got over by the practical suggestion of the clergyman at Struan, who is nearly as enthusiastic an apiarian as Mr. Paterson himself, to the effect that the sides of the hive be formed by a combination of wood and plaster. After careful experiment it was found that this could be best accomplished by outer frames of wood, such as painters have their canvas stretched on. Permission was obtained from a Glasgow patentee to take advantage of his invention, and a kind of sackcloth called scrim was stretched on the frames. Each side of the hive thus formed was laid on a flat stone, and the plaster, reduced by water to the consistency of very rich cream, was poured on, and when dry, which speedily happens, the frame is formed. These when carefully packed can be sent anywhere.

The mode of uniting the four sides may be varied. The first plan tried was very effective. Eight sheet iron corners, such as are used for strengthening the biscuit boxes issued by the manufacturers, or may be seen clasping the two sides of the cheaper class of trunks, were attached by screws, and the box was complete, ready for the reception of the frames. Another change in the form of the hive, however, has been made, so as to suit the new-shaped frames which are referred to at the outset under head No. 2, of which I shall now speak.

2. It is well known that from an early period it has been the aim of skilled apiarians to adapt the shape of the hive as nearly

as possible to the form of the comb, especially at that stage of its formation when the clustering bees are spread over the greater part of its surface for breeding purposes. Hence we have square, hexagonal, octagonal, and circular-shaped hives put forth by their several advocates as being each the best in the circumstances. The square, though perhaps the handiest where frames are used, is prettiest in shape from the requisite referred to. All who have used it must have been very frequently annoyed at the results flowing from the "cold corners," as "A RENFREWSHIRE BEE-KEEPER" aptly calls them, and the absence of which in his favourite Stewarton is an occasional source of very natural congratulation, to which the hexagonal and the circular are equally entitled. But there are "cold corners" in every comb of far more serious consequence in every hive with a flat top, and two in every dome-shaped one. The two lower ones are worse than useless, and the upper two are only a shade better. In the former honey is seldom placed, and brood never. The bees, like Nature, abhor a vacuum. Hence the space is filled with useless comb, which to the apiarian looking for profit means waste. In the upper two honey is generally found; but if so it is as often superfluous. To remedy this Mr. Paterson has set himself; and the practical result will, with your permission, be given in your next.—ALROFI.

BEE WEATHER IN ALGERIA.

THE month of March was nothing but a succession of cold miserable days, snow lying deep on the upper slopes of the lesser Atlas Mountains; and the fierce gales that we have had, as they swept over the snow, came to us with a biting nip that made one shiver and enjoy a blazing log fire many an evening of that month. As to pasturage for bees there has literally been none. Day after day have I found "another hive dead," and if I had not fed up my bar-framers I fear it is not many I would have had left. Last year (1878) although March was blustering yet the bees worked splendidly on the orange blossoms, and by the 30th I had to give room to several hives, and had supers that afterwards were exhibited in the Algerian palace at the Paris Exhibition.

This year there are no orange blossoms to speak of; all the trees are sick. They say it is the effect of the raging south winds we have had. According to locality orange trees have been in flower since November last to this moment, but it has been a spasmodic kind of flowering which will make the crop of oranges very small indeed. The fruit tree blossoms have completely failed therefore this season, and this has had its effect on the hives, for breeding may be said to have stood still during March and April, for the incoming has been barely sufficient for actual necessities. All the land lying around the town of Blidah, which has the right to a supply of irrigating water, is devoted mainly to the culture of the orange tree. These are planted in rows. The ground lying between the trees is carefully turned to the best account possible by the Mahonnais, Maltese, and Spanish gardeners, who rent these orange groves. Every foot of ground is worked, and a crop is hardly a day off the ground before the land is heavily manured and prepared for another crop. This goes on the entire year round, for they force these crops by irrigation to a wonderful extent, and during the fierce heats of summer the growing crops are somewhat shaded by the orange trees. One favourite crop here is that of beans. I expected my bees to profit largely by them, but exactly at the time of their flowering we had fearful siroccos, and the entire crop of beans is this year a failure; the flowers all turned black, and bees gathered nothing from that source.

During the entire month just gone I have had a strong colony suspended from a balance, and in forty days it went ahead just 1 lb.! The 13th of April was a glorious day, and a swarm issued from the strongest colony. I found a queen on the ground in front of the hive. I clipped her wing, placed her in a cage, and all the bees returned to the hive. Shortly afterwards I observed a commotion at the hive entrance, and found there another queen with wings cut! I then did what I should have done before—I consulted the hive registry card, only to find I had committed a blunder. It was a newly-born princess that was leading off the swarm, and I had clipped her wing, rendering her valueless. I was very much vexed. Nothing, however, remained but to return the old queen. "One swallow does not make a summer." So it is with swarms. No other hives swarmed until the 26th, as will be seen on reference to the table, and of these one was a very small Arab hive 24 by 6½ by 6½ inches that must have had a very fertile queen; the other was a straw skep that for experiment sake has not been loosened from its floor-board for two years.

Now a word about that swarm from the Arab hive. What with the bad weather, and removing it from an apiary two miles off, it had got a shock to its nerves that prevented it swarming when it was ready to do so. By the 26th nearly every queen cell must have hatched-out its occupant, and a tidy few there must have been. I was fortunately engaged examining a hive close by when the swarming impulse seized that Arab. I knelt down the better to watch the rush, intending to seize and cage the queen. "I have you, my lady!" I exclaimed as a queen emerged, and soon she was safe in a cage. But lo, and behold! another queen, and yet another, and another until I had eight in my hand, and didn't they sting? Well, out they rushed—I mean queens—until I was fairly bewildered. Having caged a dozen or so I proceeded to hive the swarm, caught it all right; but the moment I proceeded to make them inhabit a bar-framer the same evening off they went again. Such a dance they led me—first on one tree, then on another. My assistant cried, "Here she is; they are gathering here!" In a moment that bunch of bees was gone, and "Here they are again," was the cry. Wherever there was a bunch of bees there was a queen. At last we set to work killing all the queens we could catch, and at last the swarm settled.

To make sure of the old hive having a queen I just slipped three in, leaving them to settle amongst themselves which should be mistress. The swarm I broke up into nuclei, and in one I found ten dead queens two days after, in another six, in another four. I reckoned my assistant and self killed twenty, three were put back in the hive, three put into a queenless hive, and a dozen caged—makes a total of fifty-eight, not to speak of those found dead at hive doors next day. Of these queens I have sent a baker's dozen to the Editors. Returning to the weather table I find that whereas the month of April, 1878, gave twenty-five days in which the bees worked well and had something to work upon, April this year has resulted in ten days of what may be called good for the bees. "Swarms will be very late this year," said a neighbour bee-keeper some twenty days ago, and so they must be with the wintry weather we are having right into the month of May.—ARTHUR TODD, *Algeria.*

OUR LETTER BOX.

WARTS ON CANARY'S WINGS (*C. R. P.*).—No one can tell the cause. Touch them with aquafortis if you wish to remove them, and scrape off the yellow surface until they are removed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. May. June.	9 A.M. Barometer at 32° and Sea Level	9 A.M. Hygrometer. Dry.	9 A.M. Hygrometer. Wet.	9 A.M. Direction of Wind.	9 A.M. Temp. of Soil at 1 foot.	In the Day. Shade Temperature. Max.	In the Day. Shade Temperature. Min.	In the Day. Radiation Temperature. In sun.	In the Day. Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 28	29.614	49.7	48.2	E.N.E.	50.7	62.3	46.1	104.8	46.1	1.285
Th. 29	29.610	51.0	47.3	W.	51.0	61.3	45.2	105.6	46.0	—
Fri. 30	29.829	56.1	51.3	S.	51.1	63.6	45.3	121.0	38.5	.187
Sat. 31	29.670	52.7	50.8	S.E.	51.5	62.2	46.0	104.2	41.3	.010
Sun. 1	29.998	54.8	49.6	W.	51.5	61.7	49.4	111.2	43.6	.202
Mo. 2	29.686	50.0	49.3	N.N.W.	51.8	57.0	46.3	98.1	45.5	.186
Tu. 3	29.455	55.4	53.4	W.	51.8	64.3	49.3	119.9	48.3	.188
Means	29.638	52.8	50.0		51.3	61.8	46.8	107.5	44.2	2.218

REMARKS.

28th.—Dull rainy morning, cleared off by noon; fine with sunshine for a time; rain commenced 7.30 P.M.; from 10 P.M. rain very heavy till about 4 A.M., also lightning and thunder.

29th.—Morning dull; afternoon and evening fine and bright.

30th.—Fine, bright, pleasant day.

31st.—Rain from 7.45 till 9 A.M., very dark at 8.30 A.M., sunshine and showers rest of the day.

1st.—Fair morning, shower about 10.30 A.M., and nearly constant rain after 2 P.M.

2nd.—Very bright in quite early morning, heavy rain all day after about 8.30 A.M.

3rd.—Showery at intervals throughout the day.

Temperature below the average, especially during the daytime; rain enormously in excess.—G. J. SYMONS.

COVENT GARDEN MARKET.—JUNE 4.

A STEADY business has been doing during the past week, which has been somewhat interrupted by the holidays, and prices are temporarily affected thereby. Hothouse fruits are much retarded by the dull weather, but are equal to the demand.

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2 0	to 4 0	Mushrooms	pottle	1 6	to 2 0
Asparagus	bundle	2 0	6 0	Mustard & Cress	punnet	0 2	0 0
Beans, Kidney ..	℔ 100	1 0	1 6	Onions	bushel	2 6	4 0
Beet, Red.....	dozen	1 0	2 0	pickling	quart	0 4	0 0
Broccoli	bundle	0 9	1 6	Parsley....	doz. bunches	2 6	0 0
Brussels Sprouts	½ sieve	0 0	0 0	Parsnips	dozen	0 0	0 0
Cabbage	dozen	1 0	2 0	Peas	quart	3 6	5 0
Carrots.....	bunch	0 4	0 8	Potatoes, new ..	℔ lb.	0 6	1 0
Capsicums	℔ 100	1 6	2 0	Potatoes	bushel	3 6	4 6
Cauliflowers	dozen	3 0	6 0	Kidney.....	bushel	4 0	5 0
Celery	bundle	1 6	2 0	Radishes..	doz. bunches	0 0	0 0
Coleworts..	doz. bunches	2 0	4 0	Rhubarb	bundle	0 0	0 6
Cucumbers.....	each	0 4	1 0	Salsafy.....	bundle	0 9	1 6
Endive	dozen	1 0	2 0	Scorzonera.....	bundle	1 0	0 0
Fennel	bunch	0 3	0 0	Seakale	basket	2 6	3 0
Garlic	℔ lb.	0 6	0 0	Shallots	℔ lb	0 3	0 0
Herbs.....	bunch	0 2	0 0	Spinach	bushel	2 6	4 0
Leeks.....	bunch	0 2	0 4	Turnips.....	bunch	0 4	0 6

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 12—18, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
12	TH	South Essex Hort. Society—Exhibition at Leyton.	71.4	46.1	58.8	3 44	8 14	0 a 5	0 52	22	0 31	163
13	F	Quekett Microscopical Club at 8 P.M.	71.9	47.4	59.6	3 44	8 15	0 18	2 1	23	0 18	164
14	S		72.6	47.9	60.3	3 44	8 15	0 33	3 11	24	0 6	165
15	SUN	1 SUNDAY AFTER TRINITY.	72.8	48.2	60.5	3 44	8 16	0 50	4 20	25	before	166
16	M	Coventry Horticultural Society—Summer Exhibition.	72.6	48.3	60.4	3 44	8 16	1 10	5 29	26	0 20	167
17	TU	Oxfordshire Hort. Society—Summer Exhibition.	72.9	47.3	60.1	3 44	8 17	1 36	6 36	27	0 33	168
18	W	Royal Botanic Society—Second Summer Show. Lee [and Blackheath Hort. Society. York—Floral Fête.	72.3	50.4	61.3	3 44	8 17	2 11	7 36	28	0 46	169

From observations taken near London during forty-three years, the average day temperature of the week is 72.3°; and its night temperature 47.9°.

STOCKS FOR APPLES—SAWBRIDGEWORTH IN MAY.

SINCE penning my remarks on the fruit stocks at Chiswick (see page 358), and to which reference is made by Mr. Rivers on page 415, I have had the privilege of inspecting the great collection of fruit trees at Sawbridgeworth. My visit was made during the blossoming period, and a more beautiful sight I have seldom witnessed than that of the thousands of trees clothed in silvery sheen. I have thus had an excellent opportunity of comparing the Apple stocks employed by Mr. Rivers with those grown in the trial grounds at Chiswick. The stocks at Chiswick I described precisely as I saw them, and Mr. Rivers has with great accuracy described the stocks as grown and grafted at Sawbridgeworth. Whatever differences there may be in the two descriptions is entirely due to the differences of soil or to some other local influences affecting the stocks. That soils have great influence on certain fruits I am able to adduce a striking example. At Sawbridgeworth the Belle de Septembre Plum cannot be made to flourish; in the neighbourhood of Chiswick—to wit, in the fruit grounds of Mr. F. Dancer, this Plum grows as freely as the Lombardy Poplar and nearly as close and upright, and is thus suitable for a screen or fruit avenue, and is withal an excellent late Plum.

Mr. Rivers on page 415 reminds me that I omitted to mention the nature of the soil at Chiswick. It is strong loam almost approaching clay. I may also state, as supplying an omission from Mr. Rivers' notes, that the soil at Sawbridgeworth is a free calcareous loam. Trees in both soils grow healthily, but rather more exuberantly in the former soil than the latter. Mr. Rivers further observes that I did not note the number of plants of the different sorts of stocks grown. There are, I think, two of each; and here I readily admit the great force of Mr. Rivers' statement, that "it is not easy to form an opinion of stocks from a few specimens, or to form an estimate of the fruit-producing qualities of the stock from its aptitude for fruit-bearing in itself." That is very true; but the evidence of blooming that I submitted was not gathered from the stocks but from the same variety of Apple—the Blenheim Pippin, that was grafted on the whole of them on the same day. Another observation of Mr. Rivers' is equally true—namely, that "it does not always follow that a stock which is fruitful one year and sterile in the succeeding year is on that account incapable of developing the fruitful qualities of the sort which is grafted upon it." Of this the Chiswick trials afford conclusive evidence, for some of the stocks produced no blossom this year, while the Apple which the same stocks are supporting produced blossom more or less freely. Neither is the relative increase or decrease of blossom produced by Apples in two years any criterion of the value of the stock, for in the Chiswick trials about the only stock that produced a greater number of blossoms this year than last is one of the most unsatisfactory stocks in the collection. Precocity of blossoming is no proof of the real lasting value of a stock. Unless a tree grows healthily as well as bears freely it cannot be regarded as satisfactory.

Referring to the experiments at Chiswick I remarked that "the best stock for promoting early fruitfulness, combined with healthy growth, is the Doucin." I am glad to see that the conclusion I arrived at so closely accords with the decision of Mr. Rivers, who says, "There is little difference in the vigour and productive qualities of the Doucin and the Broad-leaved Paradise;" but he adds, "the former does not form roots with the same facility as the latter, but has the quality of sending out one long root devoid of fibres, which renders the tree worthless as a marketable variety." In noting the stocks at Chiswick I, of course, did not dig up the trees; and here the wide experience of the nurseryman becomes of so much greater value than the observations of the visitor; and there is not a doubt that Mr. Rivers has acted wisely in adopting the Broad-leaved Paradise as a stock for culinary Apples (which it is not desirable to grow as pigmies), for he thereby secures freedom of growth with fruitfulness. The thousands of trees at Sawbridgeworth are just of that character—namely, producing abundance of blossom without the trees possessing that stunted appearance that is frequently seen when very precocious stocks are employed. Although in the Chiswick soil the Broad-leaved Paradise stock grows strongly, yet the Apples worked on this stock at Sawbridgeworth grow by no means luxuriantly, but, on the contrary, are free yet fruitful, for trees of all sizes were three weeks ago richly clothed with blossom.

I now turn to the French Paradise and the Nonsuch Paradise stocks. "The Nonsuch Paradise is as fertile, but more hardy and vigorous than the French Paradise, which is too tender and delicate to be used generally." Thus writes Mr. Rivers of the stocks in his nursery; and it is certain that he has arrived at that decision after many years of trial with many thousands of stocks, and his opinion necessarily carries sufficient weight to be regarded as conclusive on the point; at any rate in regard to medium and light soils. At Chiswick the French Paradise is unquestionably short-lived when not grafted, in fact it dies outright in a few years; but trees worked on it grow healthily and produce blossom freely. In less strong soil the trees would probably lack vigour. At Chiswick trees grafted on this stock both as regards health, training, and floriferousness are precisely like trees at Sawbridgeworth on the Nonsuch stock—that is, that in both instances they are as good as can be desired. Both stocks also produce surface fibrous roots so freely and appear to take hold of the soil so slightly that it would not be difficult to pull pyramids 6 or 8 feet high out of the ground without the aid of the spade. The Nonsuch is, however, undoubtedly the freer stock of the two, and I should unhesitatingly give it the preference for the generality of soils. The dessert Apples on the Nonsuch stock in the Sawbridgeworth nurseries, whether the trees are two years old or ten, whether grown as bushes, pyramids, espaliers, or cordons, were in the long nursery rows and broad quarters strikingly beautiful with their many tinted blossoms, yet had wood growth sufficient to maintain them in health and to insure their onward progress.

I will now glance at the Pears. It is not necessary to dwell at length on the stocks on which they are grafted, important as this subject is, for in the hands of experienced cultivators like Messrs. Rivers it is only necessary to order a given variety and it is sure to be sent on the stock on which it thrives best: this indeed is the practice adopted in all nurseries where fruit trees are well and largely grown. The majority of Pears thrive on the Quince. Some, however, will not do so; others prefer the Pear stock, and some again require double grafting. At Sawbridgeworth, where long and close attention has been given to the particular requirements of the different varieties in respect of stocks, double grafting is rather extensively practised, and examples of the practice are not more rare. For instance, the naturally open and "sprawling" growing Jargonelle is converted into a handsome tractable pyramid when worked on Beurré d'Amanlis already established on the Quince. Trees thus worked, not always on the same stocks, were pictures of health and beauty.

Especially noticeable was an avenue of Pear trees in pots. This mode of culture is one of Mr. Rivers' specialities, but not a mere fancy, for it is obvious that if trees of this nature were not appreciated by others such a large number would not be provided. The trees composing the avenue referred to are in pots 18 inches in diameter, plunged in the side borders of a gravel walk. The trees, which are of faultless shape, are from 8 to 10 feet in height, and are capable of bearing about three dozen of Pears each. The pots are perforated, and the roots protruding from their sides afford nourishment to the trees and fruits in summer, and are cut off when the trees are pruned in winter. The advantage of trees thus grown is, that in the spring when the blossoms are expanding the trees can during a frosty night be laid on their sides close together and protected with a few sheets or mats, and thus the blossom escapes destruction. Smaller trees are grown by hundreds in smaller pots. These trees are in the form of cones 3 or 4 feet high; they were densely clothed with blossom and setting fruit; and as affording evidence of the small sheltering space that is requisite to preserve the blossoms of trees of this character I may state that two hundred of these trees were stood on a side border of a rough unheated house 60 feet long, the border being 6 feet wide. The border on the opposite side of the same structure—a span-roof with boarded sides—was occupied with Cherries in pots bearing an abundant crop of fruit just commencing swelling. These Cherry trees will yield a supply of splendid ripe fruit for upwards of two months, the sun doing all the heating, and the fruit safe from birds. This simple and certain mode of Cherry culture is worthy of extensive adoption, for the trees bear heavy crops, the outlay for sheltering them being small, and the attention required simple.

Now a glance in the Peach houses. The structures, which are large, light and economical, answer their purpose as well as the most elaborate erections, and yet their appearance is neat. In the centre of one house we find large, informal-headed standard trees (planted out) laden with fruit, some of them bearing fifteen dozen Peaches. The trees are not spurred and pinched in the orthodox fashion, but a simpler system of management is adopted. After a few superfluous growths are thinned out the remainder are permitted to grow unchecked until the stones are formed in the fruit, then the luxuriant shoots are cut out, the others being left untouched. If pruned before, the sap would cause the buds of the smaller wood to break, but now the swelling fruit "takes the sap" and "puts on flesh" rapidly. That is both the theory and practice of Mr. Elsdon, the skilled foreman of the establishment, and the excellent condition of the trees and crop prove the principle sound. On the side borders are trees in pots, some of them, the originals of some of the famed Sawbridgeworth seedlings, being thirty years old. They are becoming gnarled and scraggy in appearance, yet they bear fruit freely and of the highest quality. In another house the central space is occupied with trees in pots, pyramids about 10 feet high, the best of them producing three dozen of fruit each. On the sides are trees planted out and trained to the roof; but there are several blanks, for visitors see the trees, admire them and purchase, and thus break the uniformity of the house.

Then there are smaller trees in other houses, and Vines in pots, wonderful alike in extent and quality. We enter a lean-to range 400 feet in length. On the back wall are Peaches, in front of them on the floor are smaller Peach and Nectarine trees in pots preparing for next year's fruiting, then comes a broad path, and close to the front of the house are two rows, both on the same level, of hot-water pipes, and standing on the pipes are two rows of Vines in pots, the growing canes being trained up the roof overhead. The pipes are hot, so hot that the hand cannot rest on them for ten seconds, yet the roots of the Vines enjoy all this heat, and the thick dark green foliage, stout short-jointed wood, and large horn-like tendrils that bristle overhead, tell how thoroughly healthy the Vines are. By the way, it is a great mistake to pinch off the tendrils from the extremities of those growing shoots that are required to extend as freely and strongly as possible, and hence two or three are always left on the Vines in this establishment, those below being cut off when the canes thicken. When the tendrils are closely pinched from the points of the Vines those points assume a thin puny appearance, contrasting very unfavourably with the stouter freer-growing canes on which the tendrils are permitted to extend, seeking a medium for support, and giving an impetus to the upward and onward progress of the Vine. The secret of the success of growing Vines on pipes so hot as these are consists in having the pots thoroughly drained, for if at all water-logged injury would inevitably result. There is obviously no rooting through the pots when Vines are grown on hot-water pipes, but all the roots are made in the pots and kept there, and the finest of them are where the heat is the greatest—namely, close at the bottom amongst the drainage. The young Vines at Sawbridgeworth are a great feature of the establishment, and older Vines also cannot fail to arrest the attention of the visitor by their general healthfulness and heavy crop of all the leading varieties. These Vines must be seen in the autumn when the crop is ripe, and in the meantime we pass on.

Another long range is filled similarly to the last; another house is full of young Orange trees, another of Roses, another of Vines, and so on to the end of the chapter, which, as regards the glass, is near the point where we began—the fruiting Orange house. This is a narrow span-roofed structure, the Oranges in pots being grown on the side beds—standards and half-standards laden with golden fruit—handsome ornaments with the fruit as regards quality far surpassing the best imported Oranges. It is noteworthy too how lastingly handsome and continuously good are those trees and fruit, for Oranges that were ripe in November are yet hanging in excellent condition; indeed in this house are Oranges and Orange blossom, always a profitable and enjoyable structure. Overhead are Vines, only mentioned, however, for the purpose of recording that this year bunches of Mrs. Pince's Muscat remained plump and fresh until April, the minimum temperature of the house being 45°.

Outside again—taking a passing glance of Rose quarters—plantations of seedling Pears and Apples blossoming freely, past hedges of Pears and Plums to large plantations of the last-named fruit, a brief allusion to which must close these notes. Old trees and young give promise of a fair crop. The most productive and profitable of Plums is Rivers' Early Prolific, of which hundreds—sometimes thousands—of bushels are grown annually. A plantation of the same age of Diamond, large orchard trees, has not yet yielded one good crop of fruit; the trees may, however, commence bearing now they have attained their full size. Prince Englebert is a Plum of profit, and Mr. Rivers has apparently great faith in Oullins Golden Gage, for he has planted it extensively. It is valuable for its excellent quality, and especially as being ready for the market some time before the Green Gage is ripe.

Such is Sawbridgeworth, attractive and instructive, and the 140 acres of its nurseries are in excellent order and condition.—J. W.

CELERY.

We have been experiencing dull showery weather lately, and it has been taken advantage of for planting out permanently, amongst other crops that of Celery. In most if not in every garden Celery forms one of the principal winter vegetables. We require it in quantity from October till the following May, but also like to have some as early as the end of August, as it comes in useful in a collection of vegetables at the autumn shows in the district.

The same ground is cropped with Celery two years running, Peas being grown between the ridges. The second year the Celery is grown on the previous season's Pea ground, and the Peas on the old Celery ridges. The Peas are sown so as to be off the ground in August at the latest, so as not to interfere with the earthing-up of the main crop of Celery. The early crop is sown in February, the varieties being Wright's Giant

White and Sandringham Dwarf White, and sufficient of these are planted to afford a supply till about Christmas, when the later-sown plants are used. These are Major Clarke's Solid Red and Sulham Prize Pink, which latter variety I have substituted for Leicester Red. These are sown in March, or at latest in the beginning of April. The earliest varieties are invariably sown in boxes and afterwards pricked out into frames; if we can manage to form a slight hotbed for them it is done, and the late varieties are sown on a layer of soil in the same frame. This season we could not spare sufficient material for this purpose, so had to be content to prick out the early batch into a rich surfacing of Mushroom-bed refuse and soil, and sow the late crop thinly in boxes.

Seeing no appearance of change in the weather, and as the plants were getting quite large enough to plant out without experiencing a check, we had the ground manured, dug, and planted. The kind of manure used is from the cow houses twelve months old, mixed the autumn previously to using with from a third to one-half of Mushroom-bed refuse and a liberal dressing of soot added. The soot not only is a fertiliser in itself but stops the breeding of worms in the heap. The mixture is turned about twice and laid in the trenches at the rate of one barrowful to 20 square feet; the trenches, which are to be occupied by Wright's Giant White, have a surfacing of half as much Mushroom-bed refuse after the trench has been dug. In digging, the dung is thoroughly incorporated with the soil, keeping it down as deeply as possible. For Celery which has to stand the winter an over-rich soil is much to be deprecated. I would not give over half the dung I do if it were not that my employer has a fancy for large-grown heads. If I had no one to pay attention to the appearance of the plants as grown, merely having the supply to keep up without reference to size, a much smaller amount of manure would satisfy my requirements. It will be seen that dull weather is taken advantage of for planting out this crop, and for the following reason—the plants obtain a grasp of the soil at once without having to apply water. I make a point never to water Celery if it can be at all avoided, and with a little careful management it is generally unnecessary to make use of it. The early-sown batch is planted with balls of roots, the plants being about 4 to 5 inches high.

The late varieties are planted out direct from the seed boxes or frame as it happens, but a very simple and efficient precaution is taken to insure the seedlings from suffering for the first day or two. A puddle of water and soil is made and the roots of the plants drawn through it, and immediately thereafter planted in the trenches. A month or so later a thin mulching of decayed manure is of advantage to the plants.

The summer management is very simple in our case. The trenches are hoed twice, and afterwards weeds, if any appear, are picked out with the hand. At the end of July Wright's Giant is earthed up, and again in the end of August; Sandringham Dwarf is earthed up six weeks later, and the late varieties during the beginning of November. These are earthed up only once. The later Celery can be left without being earthed up the better will the plants stand the winter, and they have a shorter season to be at the mercy of underground "gardeners' foes." The surplus plants of the two White varieties are grown for kitchen use throughout the summer, a shady position being much the best for them.

I am afraid some of the points on Celery culture as above laid down will be hardly considered orthodox by many, but they are the result of my own experience in the matter, and simplify with the best results the cultivation of a vegetable which, in many instances, absorbs more labour than is either convenient or necessary.—R. P. Brotherston.

A CENTURY OF ROSES.

Not of time but of number, not in England but in France, for such is the title given to the paper in the "Journal des Roses" to which I have already alluded. It would appear that the Horticultural Society of the Haut Garonne in the south-west of France formed a committee of ten members to select the best hundred Roses in the classes of Hybrid Perpetuals, Bourbons, Teas, Noisettes, and Hybrid Noisettes. They selected sixty Hybrid Perpetuals, twenty Teas, eleven Bourbons, six Noisettes, and three Hybrid Noisettes. They appear to have met together; they selected the Roses, and gave them a place according to the number of votes. They did it well, as the French always do any classification; and although their results are to us somewhat astounding, yet we must consider the great difference between the climate of the south-west of France and the most favoured spots even of English Rose grounds. The following Hybrid Perpetuals obtained ten votes, the highest number that could be given.

1. Abel Carrière
2. Baronne de Rothschild
3. Capitaine Christy
4. Charles Lefebvre
5. Christian Puttner
6. C. Cécile de Chabrillant
7. Duchesse de Vallombrosa
8. Duhamel Dumonceau
9. Edouard Morren
10. Etienne Levet
11. Francique Barillot
12. Gloire de Ducher
13. Hippolyte Jamain
14. Hortense Maynard
15. Jules Margottin
16. La France
17. Madame C. Crapelet
18. Madame George Schwartz
19. Madame Lacharme
20. Madame Louise Levèque
21. Madame Vidot
22. Madame Thérèse Levet
23. Marie Finger
24. Marquise de Castellane
25. La Reine
26. Thyra Hammerick
27. Triomphe de l'Exposition
28. Victor Verdier
29. Xavier Olibo
30. Madame Claude Leblond

The following had nine votes—

31. Bessie Johnson
32. Charles Margottin
33. Comtesse d'Oxford
34. Docteur Henon
35. Duchesse de Sutherland
36. Ferdinand de Lesseps
37. Général Duc d'Aumale
38. John Hopper
39. Jean Liabaud
40. Madame Angèle Despott
41. Madame Boll
42. Madame Emma Coimbey
43. Madame Hunnebelle
44. Madame Nachury
45. Mdlle. Eugénie Wilhelm
46. Mdlle. Marie Cointet
47. Marguerite Brassac
48. Marie Baumann
49. Adam Vital
50. Paul Neyron
51. Peach Blossom
52. Princesse Mathilde
53. Reynolds Hole
54. Richard Wallace
55. Victor le Bihan

The following had eight votes—

56. Anna de Diesbach
57. Docteur Andry
58. Duchesse de Cambacères
59. La Motte Sanguine
60. Triomphe de Toulouse

Of these Nos. 5, 8, 11, 14, 30, 34, 37, 40, 43, 45, 59, 60 are unknown to us. A few of them have indeed appeared, but long since discarded; while of some of them I do not think that I am wrong in saying they never have been known to us.

Of Teas Adrienne Christophle, Belle Lyonnaise, Comte de Paris, Devoniensis, Gloire de Dijon, Madame Hippolyte Jamain, Madame Melanie Willermoz, Madame Margottin, and Maréchal Niel received ten votes; Bougère, Comtesse de Labarthe, and Souvenir de Maximilian nine; Catherine Mermet, Jean Pernet, David Pradel, Socrate, Souvenir d'un Ami, and Sombreuil eight votes.

Of Bourbons Souvenir de la Malmaison, and Madame Just Detrey have ten; Louise Margottin, Louise Odier, and Mdlle. Favart have nine votes; Baronne de Noirmont, Comtesse de Barbatanne, Emotion, Rev. H. H. D'Ombrain, and Victor Emmanuel eight; and Paul Bouvier seven.

The following Noisettes are selected—Annie Vibert, Céline Forestier, Chromatella (Cloth of Gold), Lamarque, Madame Caroline Kuster, and Ophirie; and of Hybrid Noisettes, Baronne de Maynard, Madame Alfred de Rougemont, and Elise Boëlle.

In looking at these names and comparing them with the Rose election one is struck with the entire absence of some Roses which stand very high in our English estimation. Louis Van-Houtte, Alfred Colomb, François Michelon, Marie Rady, Madame Victor Verdier, Duke of Edinburgh, Senateur Vaisse, Marguerite de St. Amand, and Mons. E. Y. Teas are amongst these. Then amongst Teas, Marie Van Houtte, Souvenir d'Elise (by-the-by, I see the Americans reject this because it is too coarse), Niphetos, and Comtesse de Nadaillac are omitted, and some are placed which we know nothing of. It is noticeable that a few of our English-raised Roses have been admitted into the list—Peach Blossom, John Hopper, Reynolds Hole, and Devoniensis, which shows that they must be grown in some numbers and appreciated. I think one thing this list must teach us, and that is that evidently other qualities than we are accustomed to value enter into their estimation, and this may account for the disappointment we sometimes experience.—D., *Deal.*

Genista præcox.—Two beautiful specimens of the above charming shrub are at present in bloom in the nurseries of Messrs. Backhouse & Son of York. They are objects which cannot be passed without admiration by the most casual observer. The habit is compact yet graceful; every twig of last year's growth is from 9 to 18 inches long, and so thickly covered with beautiful straw-coloured flowers as to completely hide all vestige of green. This is a valuable shrub for "livening up" a shrubbery. It is especially adapted for villa gardens, as it

is not a large grower; and as a standard for the latter purpose w ould be considered handsome either in or out of bloom.—R. J.

SIR JOSEPH PAXTON STRAWBERRY.

MR. TAYLOR on page 393 says that he fails to see any improvement in the above Strawberry over Keens' Seedling. I for some years grew both the varieties, but Sir Joseph was so much finer than Keens' that I discarded the useful old Strawberry last mentioned, and have never regretted having done so. I consider Vicomtesse Héricart de Thury, President, and Sir Joseph Paxton the three most useful Strawberries in cultivation. British Queen and Dr. Hogg are richer in flavour but much less productive. They are a little later than those named, and are succeeded by Eleanor and Elton Seedling. Has not Mr. Taylor made a mistake in his notes? He describes the Vicomtesse as "everybody's Strawberry," and yet he intimates that he only intends to grow Keens' Seedling and President next year.—A SURREY GARDENER.

[Yes, Mr. Taylor made a mistake and asks us to correct it. He meant to say that he intended growing only Vicomtesse Héricart de Thury and President for forcing next year.—EDS.]

AUSTRALIAN EUCALYPTI.

MUCH interest has been felt for some time in this country about the Eucalypti, and this feeling was quickened by the extraordinary growth of E. globulus last year—growth that was in most cases doomed to destruction by frost. I hope it will be found that trees planted in sheltered nooks and snug corners have escaped, although not altogether unscathed. However this may be, space will still be given to E. globulus, even though we had to treat it as an annual; and as every item of information about it is read with avidity I send you a cutting from the *Daily Telegraph*, giving a brief description of some of the best kinds. If E. amygdalina has been introduced I should much like to know who has it, and if it is possible to obtain a plant.—EDWARD LUCKHURST.

"As inquiries come to me by every mail, not only from residents in the mother country, but also from the continent, India, and China, as to what variety will best suit their special climate and soil; and as my old friends, Baron Ferd. von Mueller and Mr. Charles Moore, directors respectively of the botanical departments of Victoria and New South Wales, have very kindly placed whatever information they could at my disposal, I beg herewith to give it you, condensed as much as possible.

"Eucalyptus globulus (Blue Gum of Tasmania).—Grows rapidly, attains great height; grows best near creeks, and will stand moderate frost and snow if well sheltered from wind.

"E. citriodora (Queensland).—Gives also from its leaves a large supply of volatile oil of lemon fragrance.

"E. diversifolia (Victoria).—Immense girth and great height, with shady foliage; prefers humid valleys, but also flourishes in dry soil near Melbourne.

"E. leucoxylon (N.S.W. and Victoria).—Iron Bark Tree, moderate height; grows well on stony ridges, is the strongest known wood, rich in kino, and is flourishing near Lucknow, India.

"E. amygdalina (N.S.W. and Victoria).—Rapid growth, great girth and height, and in New Zealand survives frost where E. globulus died, where it thrives. This is one of the best of the whole tribe.

"E. brachypoda.—Spread over the inland tropical and extra-tropical arid regions of Australia, and is one of the best sorts for desert country.

"E. resinifera (N.S.W.).—Red Mahogany; splendid timber, and is proved to be well adapted for tropical climates.

"E. rostrata.—Red Gum; good timber for poles and posts. It will grow well in swamps, and thrives well in Oude, where E. globulus and other sorts failed.

"E. Gunnii (N.S.W., Victoria, and Tasmania).—Grows well at alpine and sub-alpine elevations.

"The following sorts also reach heights here covered with snow for some months yearly:—E. coriacea, E. alpina, E. urnigera, E. coccifera, and E. verrucosa.

"Although in some of the above varieties the foliage is not so thick nor the scent of the leaves so powerful as in the E. globulus, analysis proves that they are richer really in the essential oils, &c.; and the whole tribe of Eucalypti is valuable for its splendid durable timber, and for the production of tar, pitch, potash, acetic acid, and dye stuffs.

"Now that a demand is springing up for the seeds I have got Messrs. C. F. Cresswell & Co., seedsmen here, to promise to collect them from various parts of the colony, so that sorts may be secured the nearest adapted for cold, hot, or dry climates in other parts of the world.

"It will be necessary also to ask for them by the botanical names as above, as in different colonies the same common name does not mean always the same sort of tree.

"We really know very little ourselves about the habits of the different varieties, therefore let no grower be disappointed if his first effort or two fail, as out of the thirty odd other sorts some may prove better adapted for either cold or heat than those I have named.—R. D. ADAMS, *Sydney, N.S.W.*"

[We have heard a great deal during the last few years about the hardiness of Eucalyptus globulus; this, in connection with its supposed febrifugal properties, has made it one of the most popular of plants. It is now quite evident, after the trying winter we have passed through, that the high expectations which had been formed respecting it have been in very many instances disappointed. It would be of great advantage to ascertain in what localities this tree has survived the long and severe winter. To arrive at a rational conclusion on the subject it would be well for those who are willing to give their experience to furnish all particulars respecting the conditions under which the tree has been grown.

A few years ago, through the liberality of the authorities at Kew, we became possessed of eleven species of Eucalyptus, besides ten good plants of E. globulus which we already had. Three of the former were lost through an accident; but the others, along with our own, were planted in a position on the southern slope of the Weald of Sussex, within thirteen miles of the sea, and at an altitude of 300 feet above its level. Here shrubs that are frequently damaged or destroyed in many parts of the country survive with little or no injury from severe winters. The Arbutuses, the Hydrangeas, the common and Portugal Laurels, Fuchsias Riccartoniana and sanguinea, and many other plants of a similar nature, stand perfectly uninjured; but every tree of the ten Eucalyptus globulus are killed to the very root, so also are E. calyphyta, fissilis, stricta, and marginalis. E. obliqua has suffered next in severity, and is dead about half way towards the ground, with every prospect that it will break again. The only three that are perfectly hardy are E. Gunni, E. urnigera, and E. polyanthemos. These are "as green as Leeks," and had already started into growth before the frost was completely gone. The foliage has not been even sered.

If, then, Eucalyptus globulus is so thoroughly killed in a situation where Laurels, Hydrangeas, and Fuchsias are perfectly hardy its claims to be a tree worthy of cultivation in this country are of the slightest, and although it may in a few instances be hardy enough to stand through a mild season there is no reliance to be placed on its hardiness. We are confirmed in this opinion by a letter just received from Penjarth, Merionethshire, in which "W. W. E. W." observes, "The Eucalyptus globulus have all died here last winter. One of them had grown to 14 feet high in two years, and at this place Camellias thrive perfectly out of doors, and there is a Mandevilla against the south wall of the house (outside) 25 feet high."

We shall be glad to have particulars as to where the tree has survived, it being no longer necessary to publish instances of its being killed by the severe frost of last winter.—EDS.]

PEAR PROSPECTS.

I REGRET to say that your words in last week's Journal as to the Pear blossom dropping at Chiswick is also true in Wiltshire. I have this morning been round and carefully inspected my trees. The result is that of those which blossomed most freely the entire crop, or nearly so, is on the ground or soon will be. Those trees that bloomed moderately have some small Pears on them growing and plumping well. Seckle seems to stand, so Summer Doyenné and Bergamotte Esperen, while Beurré d'Amanlis are all gone. Madame Treyve has also a few; but I grieve to say that all of Louise Bonne of Jersey appear to have fallen. Beurré Diel has just a sprinkling, so has Beurré Giffard, while Napoleon, Williams' Bon Chrêtien, and Josephine de Malines are nil. The wall Pears will stay on just in proportion to their having been more or less sheltered from the rain. Jargonelle, which is often on the end of a house, will be more preserved than many. The loss of the Pear crop is disappointing, the more so as the absence of

frost made one rather too sure of a good season. Apples as yet, I think, are all right.—WILTSHIRE RECTOR.

NOTES ON FLOWERS IN IRELAND.

I AM afraid the last almost unprecedentedly severe winter has played such sad havoc on the Roses, Liliums, and spring-blooming plants of your usually vivacious correspondent "WYLD SAVAGE" as to induce him to look at floriculture through very gloomy spectacles.

I have within the past few months visited almost every large garden within the vicinity of this town, and within the present week two of the largest—Lord Donoghmore's and Mr. John Bagwell's—and all the gardens looked more or less brilliant. The prevailing flowers, and those that looked best, I will say a word about very briefly.

It certainly does surprise me to think, situated in the extreme south of England, and within the genial influence of the mild Channel breezes, "WYLD SAVAGE" should be obliged to report, besides the "death-roll" of his Liliums, the havoc on his beautiful stock of Roses and "the loss of a large collection of herbaceous plants." During the month of May we had only one genial day. With us the shade thermometer almost invariably stood between 53° and 58°. Within the last ten days almost all the bedding has been completed, even including Tuberous Begonias in a few instances; and we are looking forward for a satisfactory floral display. Spring-blooming plants have done well. The Anemones at Heywood and Minella are as fine as ever came under my notice. Ixias at Birdhill that hitherto did well protected outside were almost a failure. Double Anemones seemed much more liable to injury than the single. Fulgens is very brilliant, but some double and semi-double varieties of A. coronaria I had were very large, many being 2½ inches in diameter. I must, however, confess to giving them on a few occasions rather good drinks of liquid manure, which they by no means dislike. Auriculas—the hardy Alpines—bloom well outside here, and there is still a fine show of them at Marlfield House. The best collection of the florist varieties is possessed by Miss Malcomson, and grown in a structure very much resembling that figured in the last number of the Journal, page 419, and were this year grown remarkably fine by Mr. Sheeley. Wallflowers, single and double, I never saw finer. An excellent collection, very dwarf, well grown, and bedded out adorned the grounds at Springfield. Pansies were perhaps inferior to other years, but they are still blooming finely. I doubt if I have ever seen finer Polyanthuses than in many of the gardens around. Violas blue, yellow, and white, are now on the whole very cheerful.—W. J. M., *Clonmel.*

KITCHEN GARDEN NOTES.

EARLY CARROTS.—Our early frame Carrots are now in use, and few early vegetables are more acceptable. A frame 6 feet by 8 feet will supply an immense number, and it is well to have this quantity at least for use in May and June. Some rows of Horn Carrots outside have come rather thinly this spring. The seed may have been partially bad, and no doubt the snails destroyed a few of the plants, as I find they are very fond of young Carrots. The cold winds, the snow and frosts we had after they were sown, were anything but agreeable to them. No one whose first sowing of Carrots fails need despair, as the seed may be sown at any time from March until the beginning of July with a certainty of securing a good crop by late autumn. Now is a very good time to sow Carrot seed, which will supply good table roots from the end of August onwards.

ENDIVE.—As this is one of the most useful plants which can be used for salads in late autumn and winter, all who care for salads should grow more or less of it. This is a suitable time to make one good sowing to produce plants which will be ready for use from September until Christmas. Some people sow the seed where the plants are to remain, but we do not, as our Endive is mostly planted after Potatoes or some other early summer crop, and it is therefore necessary to have the plants ready for planting when the ground is cleared. The seed may be sown in a bed or box, and care must be taken that the young plants are never checked through being dry at the root, as this generally causes them to run to seed. We have a number of young plants in the seed bed now ready for planting, but probably if we have a hot summer some or all of them may run to seed, which early Endive frequently does. For that reason we make occasional sowings from May until August. A soil moderately rich and open suits them admirably. The varieties of Batavian and the Moss and Green Curled are all good.

LETTUCE.—We are growing many of these this year, but for the present I will only notice one, and that is Tom Thumb of Messrs. Wheeler of Gloucester. This is a small Lettuce of the Cabbage form. It grows into little balls about 4 inches in diameter, and it is valuable from the fact that it rarely runs to seed. After the heads are formed they will remain firm for many weeks during the driest weather. We are now cutting plants which were ready for use a month ago, and not one of them is yet showing the slightest sign of "bolting." It comes quicker into use than the Cos varieties.

CARTER'S NEW VIOLET-COLOURED RADISH.—This Radish is of the French Breakfast type, and handsome in shape and colour. The colour is of a violet hue, and forms a pleasant contrast to the scarlet and white varieties.

CABBAGE PLANTS LOSING THEIR CENTRES.—Some years ago hundreds of our Cabbages, Cauliflowers, and Broccoli were rendered useless by a little fly (resembling the Turnip fly) eating the centres of the plants when they were beginning to grow after being transferred from the seed beds to their permanent quarters. After trying various plans to prevent this we have found an effectual preventive is dusting a little soot and lime into the centres of the plants about once a week until they are large enough to be safe. This dusting also helps greatly to keep the snails at a distance, especially when a little salt is mixed with the soot and lime.

EARTHING-UP.—Some gardeners approve of earthing-up all Cabbages, Cauliflowers, Potatoes, &c.; others do not. Last year I was asked several times why we earthed-up. The reply was, If it did not benefit the plants in any other way it always kept them from being shaken about by the wind, and this in itself is no mean advantage. In exposed situations great harm is often done to vegetables by the wind waving the plants about and not unfrequently laying them flat on the ground. When the surrounding soil is drawn carefully up to the stems and pressed moderately firm against them, that never happens to any injurious extent, and for this reason alone we advise and practise earthing-up, &c. Potatoes also derive the same benefit from it, as well as being the means of keeping the tubers more concealed from light, besides draining the water from the plants into the centres of the rows—an important benefit in wet soils and seasons.—A KITCHEN GARDENER.

SPARROWS AND FRUIT.

MUCH is said about the mischief done by sparrows. That they are at times valuable as adjuncts to a garden we must admit, but that they are more generally mischievous we cannot deny, nor that they have many vagaries. I can give some evidence of both these propositions. Some years since I was struck by the absence of caterpillars on my Gooseberry bushes, which was explained by the constant presence of sparrows, which cleared them away as they appeared. The next year I hoped the same thing would occur; but no. My daughters had commenced keeping chickens, when the sparrows were found as busy in the poultry yard picking the grains of corn as they had the year before been busy feeding on the caterpillars. Two years since in another place sparrows proved themselves to be sparrows independent of place. As our yellow Crocuses appeared in full bloom they were bitten off and left to decay. This year they were spared; but no sooner had our Peas risen half an inch than they were picked to pieces, to the ruin of our first sowing. We have since used the wire protectors, and so the Peas are safe; but not so were all our crops, for the Lettuces have been their amusement or food, obliging us to use for them the Pea protectors, which are effectual.

I may add here we are deficient in Gooseberries and Red Currants. The wall fruit, too, is poor; but the promise of Apples, Pears, and Damsons is very good. Vegetation is at least six weeks later than usual. The Oak, just bursting into leaf, has the Ash, its neighbour, so little behind it that it is almost difficult to decide which has the precedence. May blossoms not yet open.—S., *Cheshire.*

TEA ROSES IN PEACH HOUSE.—In one of the cool peacheries at Holeyn Hall Mr. Cook has resorted to a very ingenious expedient in utilising every available space under glass. In his peacheries he planted Roses to fill up vacant places

between the trees, but as the Peaches covered the trellis the Roses were pegged down in a line close to the front sashes where they are planted, and at present form quite a little hedge of Roses. At the time of my visit there were hundreds of the choicest Teas in bloom. If we take into consideration, as a rule, the small per-centage of fruit produced at the base of trees opposite to the front sashes the value of this method of occupying space becomes considerably enhanced.—B. COWAN.

DEVON AND EXETER HORTICULTURAL SOCIETY'S SUMMER SHOW.

WHETHER the Committee of this old-established horticultural society acted wisely in fixing their summer show for the same week as the one which the Bath and West of England held theirs, is a question which requires more space to discuss than you will probably be inclined to devote to a matter which is so purely local. Personally I am inclined to think that we should have done better to have held our Show at the old time, when Roses were in bloom and not merely in leaf as now; but the desire "to make hay when the sun shines" has overridden all other considerations, and the result was what everyone who knows anything about horticulture easily foretold, a very poor show.

There were some most excellent features about the Show which I will endeavour to describe; but taken as a whole, more particularly from the florist's point of view, it is impossible for one of the greatest friends of the Society to call it a success. As, indeed, how could it be? The Bath and West of England had, thanks to the energy and the untiring zeal of their excellent Steward (the Hon. and Rev. J. T. Boscawen), secured the services of most of the leading amateurs of the three western counties; and some of the great Exeter growers, who are generally the mainstay of the Society, were not represented by a single specimen.

The list of exhibitors at the Bath and West of England, which I have given in another article, will account for the absence of the old and valued supporters of our Society; and I may say that if it had not been for the energy and good will of Messrs. Lucombe and Pince, and one or two Exeter and Crediton amateurs, our tents would have been scarcely tenanted.

All praise is due to Dr. Woodman for so nobly coming to the rescue. I do not think he ever showed such a grand lot of flowers before. His plants in the tent devoted to his sole use were magnificent, and the twenty-four bunches of cut flowers with which he won the special prize of five guineas given by John Geare, Esq., surpassed anything I have seen. The old Society will ever owe a debt of deep gratitude to this enthusiastic horticulturist. His large tent was filled among other plants with such grand specimens of Azaleas that old exhibitors were enthusiastic in their praise. But though very striking, his Orchids and other plants commended themselves most to my eyes. Among others he had splendid specimens of Allamanda Hendersonii and A. grandiflora. But his plants of Eucharis and Stephanotis floribunda attracted the most attention from the fair maids of Devon. Those who like foliage plants were astounded by the size of his Crotons, Dracænas, and Alocasias, while his Aphelexis, Orchids, Cattleya Mossiæ and Oncidium Forbesii, Lælia purpurata, and Aërides odorata, though small and insignificant beside the large Crotons, diversified the stand and invited the attention of all.

In another tent he carried off the first prize for twenty-four cut blooms of distinct varieties with a stand of such great merit that I know not how to describe it. It will, perhaps, be best to give a list of the flowers exhibited, as it may prove useful to other exhibitors who may have to exhibit a similar stand. The principal blooms were Lælia purpurata, Allamanda Hendersonii and A. grandiflora, Ixora Prince of Wales and I. Colei, Aërides odorata (a most lovely Orchid), Clerodendron Balfourianum, Adenandra fragrans, Aphelexis macrantha purpurea, Pimelea spectabilis, Statice profusa, Rhododendron Gibsoni, Bougainvillea glabra, Eucharis amazonica, Anthurium Schertzerianum, a bunch of the white Rose Niphetos, Erica profusa, Brassia brachiata, Nerium splendens, and Cattleya Mossiæ. Mr. E. W. Cleeve of Crediton showed a very fine stand also, one which would have carried the day if anyone but Dr. Woodman had been there. He also had fine specimens of Allamanda, Amaryllis, Gloxinia, Bougainvillea, Rondeletia, Vinca alba, Lilium longiflorum, Hibiscus grandiflorus, Abutilon Duc de Malakoff, Tydea, and Aphelexis, and a grand specimen of the Begonia balsamiflora.

It would weary your readers to give any more lists, so although I have taken notes of all the plants exhibited by the local growers, I am afraid I must cut my remarks very short. Mr. Parkyns of St. Thomas, Exeter, showed remarkably well, carrying off all the first prizes for stove and greenhouse plants. He had the finest specimen of Clerodendron Balfourianum that I have ever seen. All the varieties shown by Dr. Woodman were also found in the amateurs' tent except the Orchids. Mr. W. Cleeve also showed very well indeed, being a good second to Mr. Parkyns. He had a fine specimen of that charming plant Dipladenia amabilis, several fine Ixoras, Allamandas, and Aphelexis, and well maintained his old reputation.

The new West of England Pansy Society made a fair show in the cut-flower tent, and what we should have done without their modest stands I do not know. Mr. Hooper of Bath and Mr. H. Cattley of the same town divided the principal prizes. Mr. Hooper secured the first prize for twenty-four distinct Show Pansies. The principal varieties there were Rev. J. Phelps, H. Thompson, Good Gracious (by no means a startling bloom, at least in my eyes), W. Greenway, Miss Barham, William Ogg, James Grieve, Champion, President, The Grand Duke Nicholas (anything but a Tartar), Striped Unique, Herbert Philips, Queen of the Purples, George Rudd, F. Shrimpton, Hon. J. T. Boscawen, Queen of Cyprus (a new title), and Charles Turner. One box of Roses only was shown, and one pot Rose. Such is the result of holding a cut flower show after an Arctic winter in the first week of June.

The fruit and vegetables were the poorest and smallest collections that I have ever seen, but how even Pines have managed to ripen this year is a mystery to—WYLD SAVAGE.

REVIEW OF BOOK.

Town and Window Gardening, including the Structure, Habits, and Uses of Plants. By CATHERINE M. BUCKTON. London: Longmans, Green, & Co.

THE object of this little work is to impart instruction on plants and to encourage a love of plant culture amongst children and the masses of the people, and in this respect it is highly commendable; but unfortunately in some parts the execution has not been equal to the design, for we find several inaccuracies which are reprehensible in an elementary work of this character. The title of the book, too, is scarcely appropriate, for the town and window gardening is confined to a few pages at the end of the book; and "First Steps in Botany" would have been more suitable.

The authoress (a member of the Leeds School Board) has arranged the subject in the form of sixteen lectures, commencing with the structure of the seed and terminating with flowerless plants; then come a few practical observations, and finally a brief guide to the Royal Gardens, Kew. The language employed is as a rule simple and explicit, with some exceptions, of which we can only note one or two. For instance, at p. 11, after an admirable account of the Yeast Plant, we find it stated that "the framework of the Yeast Plant is made of wood," which would at least convey a very wrong impression of its substance to juvenile readers. The word "protoplasm" occurs rather too frequently, for in one short paragraph it is repeated three times. The more important mistakes are the following —"Dry air contains a great deal of oxygen, damp air very little;" whereas it is well known that the proportion of oxygen never varies. The sentence, "Dracænas and Bignonias are members of the Lily family" is correct only so far as it applies to the former, for the latter is included in the natural order Bignoniaceæ, very widely separated from the Lilies. "A compost means earth found in hedges where a great many plants grow" is a definition that will surprise many; and that "loam means just the top part of the earth in which no plants but grass have grown before" will be equally new. The Wine Palm is Caryota urens, and not Arenga saccharifera as stated at page 158; and those persons who seek the Clematis in the Succulent house at Kew, according to the direction given, will most certainly be disappointed. In elementary and introductory works accuracy is of the first importance, and it is not a pleasant duty to point out errors in a work dedicated to Dean Stanley, and which is likely to be employed as a medium of instruction in our elementary schools. The object of the authoress in preparing this little volume is a laudable one, and a great portion of the "lessons" are suitable for juvenile classes, but it is very desirable if another edition is called for that the pages undergo careful revision.

THE JAPANESE WAX TREE.—The most important article for illuminating purposes in Japan is the candle made from the fruit of a Rhus, a tree about the size and appearance of the common Sumach of this country. It is grown more or less extensively almost everywhere in Japan, and especially in the western provinces from the south, north-west to the 35th degree. Specimens of this tree have been imported for introduction. The tree has a quick growth, and attains the diameter of 1½ foot, and a height of 25 feet. It begins to yield berries the third year, but in California may bear the next year after planting. The berry here is the size of a small pea, of white colour, hanging in clusters, and contains the wax as a thick white coating of the seed. It is a hardy plant growing on different soil, on

embankments, and out-of-the-way places. The wax is obtained by the berries being crushed, steamed, and then placed in hemp bags and pressed in a wedge press. It is also obtained by boiling the bruised seeds and skimming the wax from the top. The wax is a palmatine or glycerine; when first extracted it is a yellowish white colour, and somewhat softer than beeswax. It melts at 127°, and when formed into candles gives a fine clear light. The tree is highly ornamental, as well as useful. The wax is in great demand, and commands a good price. It is valuable for candles, making the gloss for linen, for waxing thread, and other purposes for which the ordinary wax is used. Since it may be grown so readily its cultivation could undoubtedly be made a source of profit.—(*California Horticulturist.*)

ROYAL HORTICULTURAL SOCIETY.

JUNE 10TH.

AFTER the very great displays that have recently been held it is not at all surprising that the present meeting should be somewhat below the average in the number of exhibits. The collections were entirely confined to the Council-room with the single exception of a group of Irises from Messrs. Barr & Sugden, which were arranged in the conservatory.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. J. Atkins, The Gardens, Lockinge Park, Wantage, sent a seedling Melon called Improved Colston Bassett, which was of inferior quality. Another Melon from Mr. W. Johnstone, Bayham Abbey, was also inferior. Mr. Miller, The Gardens, Clumber, Notts, sent two Melons, one called Clumber, which was very indifferent in flavour; the other was named William Tillery, a green-fleshed variety with dark green and very thin skin, green flesh, and of very high quality. It was awarded a first-class certificate.

FLORAL COMMITTEE.—Dr. Denny in the chair. In the Council-room there was a number of plants of considerable merit, Messrs. Veitch contributing a large collection of new and rare plants, of which we will briefly notice the most prominent. Torenia Fournieri was very beautiful, with numerous flowers, the upper lobe of the corolla being light blue and the three lower tipped with rich dark purple. Rhododendron Prince Leopold, very deep, bright, salmon-coloured, neat flowers in small heads. Boronia elatior was in good form and richly coloured. Torenia Bailloni has the throat and tube of the corolla very dark claret, and the lobes yellow. Hæmanthus hirsutus has small heads of white flowers. Begonia Davisii—a little gem—is very dwarf, with flowers of a rich scarlet colour. Lilium bulbiferum aureo-variegatum has umbels of dark orange flowers with recurved divisions; very pretty. Cypripedium barbatum nigrum is a very dark variety with small flowers. Blandfordia aurea has long linear foliage and racemes of pale orange, tubular, pendulous flowers. Dendrobium Bensoniæ has the sepals and petals white, labellum roundish, yellow in the centre, with two dark spots and a white margin. Cattleya Warneri was very fine, with three fine richly-coloured flowers. Odontoglossum nævium, with nine spikes of its finely spotted flowers, was very attractive. Rhododendron Duchess of Teck, very good. Cattleya Mossiæ alba, distinct. Aërides Fieldingii with two fine spikes. Dendrobium suavissimum, with its lovely yellow flowers and purple labellum, with a dark blotch in the centre. First-class certificates were awarded for Cattleya McMorlandi, with very large flowers; sepals narrow and reflexed, very faintly tinted with purple; petals broad, rather more deeply tinged; labellum with an undulated margin and marked with broad yellow veins. For Gloxinia Yakoob Khan, a very dwarf and compact variety, the flowers being of excellent form. The throat is finely dotted with reddish purple, the limb being purple with a whitish margin spotted with the same colour. For Begonia Mrs. Arthur Potts, dwarf in habit, the flowers of medium size, extremely rich crimson-scarlet and very freely flowering.

Messrs. Osborn & Son of Fulham exhibited a group of hardy plants, of which the following were the most noticeable:—Anthericum Liliastrum with racemes of white flowers; Saxifraga Wallacei; Iberis corifolia, compact corymbs of white flowers; Orobus aurantiacus, abundant orange-coloured flowers; and Arenaria balearica. A first-class certificate was awarded to Messrs. Osborn for a magnificent Tuberous Begonia, Souvenir de Gand, the flowers being an extremely rich scarlet colour, exceeding 8½ inches in diameter, and of exceptionally good substance.

Mr. B. S. Williams exhibited a few plants, of which the two following were awarded first-class certificates—viz., Ochna multiflora, a most peculiar and interesting stove plant, bearing fruits three-quarters of an inch in diameter which might easily be mistaken for flowers, the five reflexed valves being a beautiful scarlet, five seeds being arranged in a circle in the centre; and Imantophyllum concinnum, bearing small umbels of pendulous, tubular, orange-coloured flowers.

Messrs. Hayes of Edmonton exhibited a collection of Pelargoniums, and first-class certificates were awarded for Maid of Kent, a handsome variety with compact trusses of white flowers, each petal being blotched in the centre with bright pink; and Nellie Hayes, also with fine trusses, the petals being suffused with pink, and each marked with crimson in the centre.

Messrs. John Laing & Co., Forest Hill, exhibited cut blooms of Pansies and a few Tuberous Begonias, of which the following were certificated:—T. H. Laing, a handsome flower of great size, rich scarlet; Marie Bouchet, crimson scarlet, double; and Clovis, double scarlet of average merit.

Messrs. Dickson were awarded a first-class certificate for Saxifraga Wallacei, one of the Mossy Saxifrages, with numerous white flowers of good size.

Mr. Charles Turner of Slough was awarded a vote of thanks for a basket of Pelargonium Illuminator, a rich crimson scarlet with darker blotches on the petals. Mr. Fisher, The Woodlands, Nightingale Lane, Clapham, was also awarded a vote of thanks for specimens of Saccolabium retusum and Dendrobium Falconeri in good health; and Mr. J. Burnett received a similar recognition for a plant of Choretis glauca. Mr. J. Flemming was awarded a cultural commendation for some extremely good Pansy blooms. From the Society's gardens came a collection of cut Aquilegia blooms in great variety, a basket of Orange blossom and Rhododendrons, and a group of Cape Pelargoniums, including that peculiarly scented species P. denticulatum.

THE OLD MARKET GARDENS AND NURSERIES OF LONDON.—No. 23.

ALTHOUGH Fulham is not, like its neighbour Kensington, a courtly suburb, we do not know another in the west of London that can boast of so many interesting memories as Fulham may, and until quite recently the place struggled hard to maintain its aspect of a suburban village. Even now it is a place innocent of a railway station, though it is shortly to have its ground careered over by the steam horse. Fulham came prominently into public notice last year in consequence of the complaints, not unreasonably made, by the market gardeners of the vicinity, some of whom were losers of many hundreds of pounds by the erratic and mischievous conduct of old Father Thames. He is, however, an individual whom it would be useless to proceed against, and he might urge that he would never have deluged his banks thus had it not been for interferences with his natural course. Those who take low-lying lands for garden purposes must take them with unavoidable risks; but it would be for the benefit of others beside the market gardeners if the north bank of the Thames were put in a better condition than it is at present.

Antiquaries are at issue regarding the derivation of the name of Fulham. We may put aside as unlikely the half-jocose and uncomplimentary supposition that it was Foulham originally, from the filthiness of the roads in the neighbourhood; nor do we fancy it could have been named Fulham because it was full of hams, although at the period of the Norman survey there was "pannage" for a thousand hogs or more, these hogs being doubtless fed partly by the acorns in Worm-all Wood, an outlying portion of the great forest of Middlesex, and on the land now called Wormholt Scrubs, which belonged to Fulham. Most probably the statement is correct that it was once Fullonham, the "place of fowls," we may conjecture from the wild birds that congregated in the extensive marshes westward.

Some time in the seventeenth century a portion of the land in the district of Fulham was brought under cultivation for supplying vegetables to London; but through many years subsequently the greater part of this suburb was used for pasture until the growth of the metropolis caused new requirements, especially as the open ground in Chelsea and Pimlico began to be built upon. Hence, early in the present century, Fulham was spoken of as the great fruit and kitchen garden district north of the river, yet of its hundreds of acres not more than about thirty-five were devoted to nursery purposes. A return in 1811, when the population was nearly 6000, showed that almost half of the workers were occupied upon the land; and if there were means of ascertaining their nationality then, we imagine it would be found that there was much less of the Hibernian element than there is now. The canal, which was filled up when the West London Railway was constructed, running from the Thames towards Paddington, and which divided Chelsea from Fulham, was of great service to the market gardeners on both sides; for at one time much produce was taken by water to Hungerford Market. Manure was also brought up this canal for garden uses, as appears from sundry records, amongst others, in the old account books of Brompton Park Nursery. Sands End, or Sandy End—probably from the sandy nature of much of the

soil, though some folks assert that the place was named from Bishop Sandys, who used to make it the end of his morning ride—has had its open ground greatly diminished of late, through the increase of population westward.

Amongst the familiar names in this district, through which the King's Road runs to Fulham Bridge, pre-eminence must be given to the name of Bagley. A lane even bears, or did bear, the name of the worthy market gardener, whose descendants of the third generation are still engaged in the same pursuit. Sands End Nursery, not far beyond the canal, belonged to Bagley, and vanished from view, if we remember rightly, about thirty years ago. A memory of it survives in a tavern opposite to the spot which until lately bore the sign of the Hand and Flower, but a new proprietor has changed this to the Rose. In works upon horticulture no mention of this nursery is discoverable as a place where new species or varieties were produced, and since its relinquishment the Bagley family has been chiefly occupied in the production of fruit and vegetables. Part of the land belonging to what was once called Bagley's Farm has been built over, and it is crossed by the new road to Wandsworth Bridge. The narrow lanes here about looked quite rural a few years since, the hedges intersecting some of the plots furnishing a habitation to many birds and insects. We witnessed in June, 1857, a very extraordinary emergence of Rose beetles (Cetonia aurata) in a market garden at Sand's End, and it has always remained a mystery to us since there were no reports of the conspicuous larvæ having been previously observed there. We can also well remember in the orchards of Sand's End and Fulham instances of the old practice of having an upper and an under crop, a plan we find still pursued in some localities in North Kent. Small salad, Cabbages, Lettuces, Peas, and Vegetable Marrows have always been largely raised on those plots devoted to vegetables, certain plants, such as Cauliflowers, Carrots, and Parsnips being generally passed by because they cannot be worked off in quick succession. Fulham, of all the suburban districts, is specially noted also for the outdoor culture of the Tomato.

If we walk through Sands End towards Fulham, it is worth while to recollect that in the west of Eelbrook Common stood old Peterborough House with its gardens and park, where many choice flowers were once reared. Bowack notices "a tree that bore a yellow Tulip, 76 feet high, which died in 1756, supposed to be then a hundred years old," whatever it was. The Matyears were known as market gardeners in this neighbourhood in the eighteenth century, and the name is now familiar, as also those of Broadbent and Humphreys, with others we need not specify. A good deal of this land is in the manor of the Bishop of London. The site of Broom House marks the position of a small district that was once covered with Broom, but when cleared for gardening purposes it was found to yield particularly well. In the village of Fulham lived that friend of the English gardener Charles Kent, who, when resident abroad, made himself acquainted with the modes pursued in the Netherlands, and published an account on his return in 1766. One of his observations that caused some stir was on the estimation of the quality of land by the trees or grasses that throve upon it.

Fulham Fields, between Fulham and Hammersmith, had originally, as Fulham Common, an extent of nearly 200 acres, and although diminished in extent the garden ground now employs many persons. Amongst the cultivators in the vicinity at present are Messrs. Chapman, Warwick, Bagley, Dellar, Elliott, Evans, and Humphreys. The orchards have been greatly reduced since Faulkner's time, probably owing to the difficulty there is in protecting fruit from depredators. For an account of the Fulham Nursery (Messrs. Osborn & Sons) we should add that the reader may refer to this Journal of the date of December 6th, 1877. Its history begins early in the eighteenth century, Messrs. Furber & Gray being the first proprietors. To this were sent many plants by travellers or botanists such as Catesby, Collinson, Miller, and others; various species were also transferred from the Bishop of London's grounds, for several of the bishops were fond of horticulture.

South Fields Farm, at Parson's Green, had nursery as well as market garden grounds attached to it. This was notable as having been for more than two centuries in the possession of the Rench family. Some of the land has been built upon, and the original tenement occupied by the Renches has disappeared. Old Philip Rench produced here, at an early date in the eighteenth century, the first Pine Strawberry, and also the first Auricula that had been recognised in this country. This worthy horticulturist founded an annual exhibition of flowers held amongst the gardeners of the neighbourhood and their friends. He lived to the advanced age of ninety-nine, having been the parent of thirty-three children! Longevity and philoprogenitiveness must have been family characteristics, for Nathaniel Rench, son of the preceding, died in 1783 at the age of 101, having had thirty-five children. He was known specially as a cultivator of evergreens, and it is said he offered premiums for new varieties of the Holly. This Rench reared some of the finest examples of the Arbutus seen in his time, several of these reaching the height of 50 feet. History also attributes to him the introduction of the Moss Rose. The early examples, so some suppose, came from Holland. Those lines of Elms which edge Birdcage Walk in St. James's Park, and which have on the whole stood the London smoke very well, were grown to a suitable size in the grounds of South Field Farm.

Purser's Cross between Fulham and Walham Green—corrupted by finicking moderns into Percy Cross, and which was perhaps at first Parson's Cross—has long been famous for its nursery grounds and private gardens. The Dancers, a name seemingly spelt "Dauncer," originally were residents in this suburb during Stuart times, and Mr. Alex. Dancer still holds much land here and elsewhere in west London. The sheltered and moderately low position is favourable for many evergreens. One of the exotic species associated with Purser's Cross is the tree called the Ginkgo (Salisburia adiantifolia), a native of China and Japan. Loudon noticed here in 1837 the highest he had ever observed, which had been planted in or about 1767. Mr. Ord of Purser's Cross had a splendid private garden planted during the reign of George III., to which visitors came from all parts of London to get "wrinkles."

At Fulham a small extent of land is now held by Mr. Wills, culture under glass being the chief object, but flowers or vegetables occupy some open ground.—C.

NOTES AND GLEANINGS.

At a general meeting of the Royal Horticultural Society held on the 10th inst., Sir Trevor Lawrence, Bart., M.P., in the chair, the following candidates were duly elected Fellows—viz., Mrs. Wager T. Allix, The Right Hon. Lord Annaly, Mrs. Maria Baker, Mrs. Edward F. Bamber, Rev. Frederick Brindley, M.A., Mrs. Fitzroy Campbell, Col. Crossman, T. T. Hodgson, T. King-Church, John E. Lane, Mrs. Las Casas, John Paterson, Mrs. T. Arthur Peto, Edward Rhys Wingfield.

—— Mr. W. G. Head has been selected from a great number of applicants as the successor of Mr. G. Thomson, and has just entered on his duties as Superintendent of the gardens at the Crystal Palace. Mr. Head has had much and varied experience in some important private gardens, also at Kew and Chiswick. He has recently returned from India after practising there for six years in connection with the Agri-Horticultural Society, and has, we believe, also had experience in commercial gardening in this country. His qualifications thus appear to render him peculiarly fitted for performing the duties required of him at the Palace, and we cordially wish him success in his new undertaking.

—— A very varied and rich display of Orchids is now flowering in Messrs. Veitch's collection at Chelsea. A houseful of Odontoglossum Alexandræ contains some splendid spikes, and there is not one variety that is not of marked excellence. O. Halli, O. Cervantesii decorum, O. nævium as richly spotted as O. cirrhosum, O. Roezlii, and O. vexillarium, both represented by superior varieties, and O. Andersonianum are extremely fine. The Cattleyas are magnificent; one rarely seen—C. McMorlandi, being highly distinct, and is described in another column. C. Mossiæ in several varieties—delicata, alba, and Wagneri, also C. Mendelii, equally command attention and admiration. Dendrobium Bensoniæ is remarkably fine, and in pleasing contrast is D. tortile with its delicate lip and twisted rosy sepals. Oncidium crispum is a mass of brownish chestnut, and O. stelligerum is distinct by its ivory white column and dark sepals. Amongst the Cypripediums C. selligerum and C. superciliare, two of the Chelsea hybrids, are grand; and in the same house a tiny gem, Angræcum falcatum, is flowering freely. Near it is the singular Stenia fimbriata, the flower resembling a large Dendrobe with a much fringed flannel-like lip; very singular. Masdevallias are some rich, as M. Harryana in several varieties, some grotesque as M. Peristeria and M. restrepia maculata, the insect-like flower of the latter being spotted like a Calceolaria. Epidendrum microchilum roseum attracts by its purplish lilac lip and

bronzy sepals; and Aërides are flowering freely—A. Veitchii and A. Fieldingii, of the latter of which there are some superior forms, and very shortly there will be a houseful of these elegant Orchids in bloom, the plants showing spikes with great freedom. Vandas are also flowering. But sufficient has been said to show the character of display, and we only add that the plants are as remarkable for their health and cleanliness as for the beauty of their flowers.

—— THE name of the LATE CHERRY met with in Ireland by "A. M. B.," and described as ripening in September and hanging till November frosts, is, says a correspondent, Sparhawk's Honey. Our correspondent has evidently been misinformed, as Sparhawk's Honey is an American variety ripening at the end of June and beginning of July. The late Cherry referred to is probably Belle Agathe (Autumn Bigarreau), which is described as follows by Dr. Hogg in the last edition of the "Fruit Manual:" "Fruit small, produced in clusters, heart-shaped, with a shallow but well-defined suture on one side of it. Skin dark crimson, with minute yellow mottles over it. Stalk 1½ to 1¾ inch long. Flesh yellowish, firm, sweet, and very nicely flavoured. Juice pale. This is a small Bigarreau, which hangs on the tree as late as the first week in October; and neither birds nor wasps touch it."

—— "I WAS delighted," writes "A. M. B.," "to see the beautiful and unique AQUILEGIA GLANDULOSA GRIGORI mentioned in the Journal of May 15th. Being a native of Nairnshire the lovely Columbine in question was naturally grown in my early days in our own and other gardens. Its dwarf compact habit of growth, and large flowers with very short spurs with depths of colour in the peculiar porcelain Wedgewood-blue tint of the inner petals contrasting with the rich white outsides, make the plant truly charming."

—— WE have received from Mr. Ellam, the Gardens, Bodorgan, several heads of a Cabbage LETTUCE of undeniable excellence. Mr. Ellam, who is known to be an excellent cultivator of vegetables and a competent judge of the merits of varieties, finds this Lettuce to surpass all other Cabbage Lettuces for hardiness, earliness, and quality. Certainly the heads forwarded to us excel all others that we have seen this year. Accompanying them were the best examples of "All the Year Round" Lettuce that could be found, both varieties having been sown at the same time and grown together; but Mr. Ellam's variety is very far superior to them. In appearance the Lettuce somewhat resembles Victoria, but is closer and has white seed, that of Victoria being black. Mr. Ellam informs us that he has grown this Lettuce for many years, and considers it his standard variety for general usefulness.

—— IN the Temperate house at Kew a very handsome specimen of ACACIA ARMATA is now flowering most profusely, plainly indicating its value for planting in winter gardens. The tree is about 12 feet high, pyramidal in form, dense and luxuriant from the ground to its summit; the branches are thickly clothed with the pale yellow globular clusters of flowers, which afford a most agreeable contrast with the intensely dark green phyllodes. Although rarely seen in such fine condition the plant is well known, having been introduced from New Holland in 1803.

—— MR. ELLIOTT, referring to the predictions of a HOT SUMMER, states that in one of his diaries he finds the weather which preceded the last dry summer very closely resembled that of the last few weeks. He is therefore preparing to meet the demands of a hot season by sowing Peas and French Beans in deep trenches, which afford an opportunity of giving a heavy mulching of manure, or of inundating the crops, should such aids prove necessary; and if not his mind, he states, will be easy, knowing that he kept on the safe side by little extra labour.

—— "WE had the pleasure recently," writes Mr. Bardney, "of inspecting a collection of ALPINE AURICULAS grown by Mr. J. Wright, Clubmore, West Derby. The majority of the plants are seedlings which have been raised by the cultivator. One plant in particular, a fine dark variety, had a very large truss, and the flower individually measured 1¾ inch in diameter. Great credit is due to Mr. Wright as a raiser and grower of these beautiful spring flowers."

—— AN extremely pretty plant for training up a pillar in the greenhouse is FUCHSIA THYMIFOLIA, a native of Mexico, whence it was introduced in 1828. The leaves are oval, about half an inch in length; the flowers small, pendulous, and very numerous, of a rich rose colour. The plant may be seen in flower at Kew.

—— AT Messrs. Carter & Co.'s Seed Warehouse, High Holborn, a very large and handsome case containing excellent samples of seeds and models of roots, is in course of preparation for the Sydney International Exhibition, where we understand it will occupy a prominent position. The case contains upwards of 120 varieties of seeds, &c., and is highly artistic in design.

—— WE have received from Mr. Ecroyde Claxton a pamphlet of twenty-seven pages, entitled "TEA ROSES AND HOW TO GROW THEM." The object of the author is to induce amateurs to cultivate Tea Roses in pots and grow them, except during a few months during the summer, in unheated houses. The pamphlet gives a simple record of the author's practice during the year, and is arranged in the form of a monthly calendar. For amateurs who have never grown Roses in pots the experience detailed may be useful; but cultivators of Roses are not quite so ignorant of the right mode of procedure, nor quite so incapable of writing instructively as the author appears to assume. With one point of practice recommended many good growers of Roses will not agree—namely, pruning Maréchal Niel on the spur system the same as a Vine; and probably when the author has had longer experience he will find it necessary to abandon that practice if he desires abundance of large brilliant blooms. The practice, however, generally detailed is sound, and if intelligently carried out will no doubt result in what the author terms a welcome "harvest of Tea Roses."

—— A USEFUL and attractive little plant for the rockery is PHLOX DIVARICATA, which bears an abundance of purplish lilac flowers of unusual size for a Phlox, and is dwarf and compact in habit. It was introduced from the home of the Phloxes—North America, in 1796.

—— AN extremely beautiful and attractive plant for the greenhouse is VERONICA HULKEI, although but rarely seen except in good collections. It is one of the New Zealand species, whence it was introduced in 1865, so that there has been ample time for it to become well known, and yet few if any of the London nurserymen include it in their catalogues. The leaves are small, ovate, and serrate; the flowers are of a most delicate pale lilac tint, and are borne on a terminal paniculate inflorescence 9 to 10 inches in length. The soft tint of the flowers, which are extremely numerous, renders the plant valuable for relieving the brighter-coloured Azaleas, &c. Its somewhat straggling habit may be improved by securing the principal stems to small sticks. It is now flowering at Kew.

—— WE have received part I. of a new work on floriculture entitled "GREENHOUSE FAVOURITES," published by Messrs. Groombridge & Sons. The part before us is wholly devoted to the Camellia, the notes on which are spread over sixteen pages. While the cultural instructions are sound enough we cannot pronounce the treatise elegantly written, nor the coloured plates and woodcuts good. The flowers have a strikingly unnatural appearance, nor are the colours so correct as they might and should be. The plain manner in which the treatise is written suggests that the chief object of the author has been to render it really useful, but he has failed to aid those who are ignorant of the relative merits of the many varieties in cultivation to make a satisfactory selection from them. Some of the finest varieties, old and new, are omitted from the meagre list of names submitted; and in the names of those retained there are some unfortunate errors in orthography that ought not to have been passed in a work of such pretensions as this is. Undoubtedly the greatest merit of the number consists in the great excellence of the type and paper.

—— WE regret to have to announce the DEATH of the veteran horticulturist, the Rev. CANON BEADON, Rector of North Stoneham, near Southampton, which took place on Tuesday last, at the great age of 102. He was born December 8th, 1777, and was installed as Canon of Wells in 1812. It will be remembered that recently Her Majesty wrote him a letter on his attaining his hundredth year.

CYPRIPEDIUM LAWRENCIANUM.

THIS handsome Orchid was found by Mr. Burbidge in Borneo, and is now being sent out by Messrs. Veitch & Sons of Chelsea, who have kindly enabled us to present our readers with a figure of this fine acquisition. The size and general appearance of the flower remind us of C. barbatum insigne,

but the shining purple veins on the upper sepals and the dark wart-like spots on the petals, combined with the extremely fine foliage marbled with dark green on a lighter ground colour, render the plant both distinct and attractive. Its merits were duly recognised at the Royal Botanic Society's Exhibition on May 21st, when a first-class certificate was

Fig. 63.—CYPRIPEDIUM LAWRENCIANUM.

awarded to Messrs. Veitch for a good specimen in which the special characteristics were well developed. The plant is a valuable addition to our list of showy Cypripediums, and is no doubt destined to obtain a high place in the esteem of Orchid growers. It is named in honour of that devoted patron of Orchids Sir Trevor Lawrence, Bart., M.P., whose collections at the numerous metropolitan exhibitions afford the visitors so much pleasure.

HUMEA ELEGANS.

THIS very graceful plant is one of extreme usefulness for the conservatory or planting out, as its long drooping in-

florescence, combined with the bright green large leaves, render it both distinct and attractive. Unfortunately it is rarely seen in good condition, and some people seem to experience difficulty in its cultivation; but this does not appear to be the case at the Pine Apple Nurseries, where we recently observed a batch of remarkably healthy and vigorous specimens. Possibly there may be some readers of the Journal who have not been very successful in the cultivation of this plant, and to such a few hints may be of service.

The present time is as good as any for sowing the seed—that is, to obtain specimens of moderate size, but if unusually large plants are required the seed should have been sown earlier. A pan or shallow pot must be prepared by well draining it, and then filling to the brim with a compost of equal parts of loam and leaf soil with a sprinkling of silver sand. Make the surface even and sow the seeds, covering them with a little finely sifted soil, and afterwards watering through a fine rose, placing the pan in heat until the seeds germinate. Remove the pan to a cooler position when the seedlings are well above the ground, and when they are large enough to handle prick them out in a box or large pan. When they have nearly filled the space alloted to them in the box or pan pot them into 3-inch pots, being careful not to disturb the roots more than necessary. The soil must now consist of equal parts of good loam and well decomposed cow dung with a little sand. After potting return the plants to the cold frame for a few days, shading if requisite, and then gradually harden them off carefully, supplying water so that they do not suffer at this stage. The next shift will be into 6-inch pots, employing the same compost; and the final potting will be requisite about March, and 10-inch pots will not then be found too large.

After this great attention should be paid to the watering, and also to ventilation if strong plants are desired; and when the pots are becoming filled with roots an occasional supply of weak liquid manure will be highly beneficial, deepening the colour of the leaves and increasing the strength of the flowering stems.—LEWIS CASTLE.

TOMATOES UNDER VINES.

IT is evident the correspondents who write at page 418 do not grow their Tomatoes under Vines in the same way as they are grown here. With some growers it is difficult to secure a proper crop of Tomatoes under any circumstances. It is well known that Tomato plants are of vigorous habit, and this fact leads many to pot and plant them in the richest mixture they can procure. In this, even in the best or most exposed position, the plants grow very rapidly, make long-jointed wood, soft flabby leaves and flowers, and the crop is always thin. Now to grow, or attempt to grow, Tomatoes under Vines or in shady places under such conditions is the nearest way to failure I know of. Opposite conditions to these are what, in my opinion, will cause Tomatoes to fruit fairly well in any position. A poorish soil and confined root room are what we provide in growing Tomatoes under Vines. Tomatoes grown in poor soil in 8, 10, and 12-inch pots make short-jointed wood, produce plenty of flowers, and generally a good proportion of fruit. Assist them by giving liberal waterings with strong liquid manure about three times a week until the fruit is ripe, stopping the growths just beyond each bunch of flowers. From the way in which "I. OF WIGHT" speaks of "densely-shaded houses" one might suppose that he will never be able to get a peep at the sky through the roof of his vinery, and if such be the case I would not like to warrant Tomatoes doing well there, nor Grapes either, as most growers find that Vines succeed best when a streak of sunshine can penetrate to the inside and back walls of their houses between the Vines, and sometimes between the shoots on the rods as well.—J. MUIR, *Margam Park.*

CEANOTHUS DENTATUS.

MOST persons are familiar with this shrub as a useful and pretty plant for training against walls, in which position it bears a profusion of pale blue flowers during early summer, but it is on account of its adaptability to cultivation in pots that we now draw attention to it. In Mr. Charles Turner's nursery at Slough we recently saw small specimens of this species and C. papillosus thriving and flowering profusely in 48 and 32-size pots. The plants were tied to thin stakes about 3 feet high, and they were evidently well fitted for decorating the conservatory in conjunction with other plants. C. papillosus differs chiefly from C. dentatus in its larger leaves, which are covered with papillæ or wart-like protuberances. Both species are natives of California, whence they were introduced in 1848–9. Their culture is comparatively easy, as they only require a soil composed of peat and loam, with a moderate degree of care in watering, and attention to

Fig. 64.—Ceanothus dentatus.

pruning-in the somewhat straggling shoots and securing them to stakes, as otherwise the plants soon become too large for pots.

THE HORTICULTURAL TENT AT THE BATH AND WEST OF ENGLAND SOCIETY'S SHOW AT EXETER.

IN floods of rain and in bitter cold did the Bath and West of England Society open their Show. The rich red marl which forms the Exeter soil, grand though it may be for Roses and other flowers, resents much rain, and takes its revenge by sticking to the boots of the pedestrians and making sight-seeing anything but agreeable. Seas of mud separated each stand, and even on Wednesday (the third dry day) it was by no means an easy task to get to the grand tent. Before referring to the several exhibits I will try to describe the artistic and charming way in which Mr. Boscawen grouped the plants placed at his disposal. We have heard a great deal lately of harmonies of colour, arrangements and nocturnes, and other terms of that character, but I do not think any arrangement at the Academy or harmony at the Grosvenor can compare with the really beautiful picture of choice flowers which the Steward afforded to the delight and wonder of thousands at Exeter. It would require the pen of the poet or the canvas of the artist to do justice to this theme, and I can scarcely hope to convey any but the faintest impression of the beauty of the tent.

It is evident that at ordinary exhibitions it is almost impossible to arrange plants and flowers upon the primary principle of grouping them to the best advantage. The groups of the respective exhibitors must be kept together. The judge must have before his eye the different collections he is required to adjudicate upon, and the exhibitor is of course anxious that the beauties of each flower is brought well to the front, therefore there must be violent contrasts. At the Bath and West of England Society's Exhibitions, however, Mr. Boscawen is hampered by no conditions, by no necessities of judging or convenience. Here is his tent, and there on the ground and all around him are his flowers and plants, and he sets to work like an artist on an empty canvas to draw his picture. In the first place, the canvas in this case is put together in no formal or strained manner. Here are no straight harsh lines, but gentle curves and bends, which make the plants recede and advance before the eye as you stand at one end of the tent. Again, all the huge Tree Ferns and Palms are made to serve a

double purpose; not only do they spread their feathery wings to the very top of the tent, but from their branches are drooping Orchids, which trail round their stems like in a tropical forest.

I will now refer to the Orchids, which attracted so much attention. Mr. Boscawen induced the Society to offer two silver cups for Orchids of the value of ten guineas each—one for the best single plant, the other for a group; and also a second cup, value five guineas, for a single Orchid, given by the Mayor of Exeter. There was a very good competition in both classes, and it would be difficult to imagine a better lot than those that won the former prize. All honour be to Dorset, for it was W. E. Brymer, Esq., M.P., of Islington House, Dorchester, who secured this grand prize. His Orchids, forty-six in number (grown by Mr. Powell, the gardener), were very good indeed. Each plant had numerous fine flowers, and the collection as a whole was worthy of the greatest praise. The principal varieties were Odontoglossum vexillarium, O. Alexandræ, O. cirrhosum, Cypripedium cordatum, Epidendrum prismatocarpum, E. vitellinum majus, Cattleya Mossiæ (magnificent), Masdevallia Veitchii, M. Harryana, Lælia purpurata, Dendrobium thyrsiflorum, D. chrysotoxum, D. Bensoniæ, D. suavissimum, Aërides Fieldingii, and Oncidium concolor. A. Miles, Esq., of Penfold, Shirehampton, Bristol, won the second prize, given by the Mayor of Exeter—a cup value five guineas. The principal varieties and species exhibited were Oncidium Marshallianum, Cypripedium cordatum, Dendrobium Devonianum (most beautiful), Odontoglossum Pescatorei, O. Alexandræ, O. pendulum, O. Phalænopsis, Cattleya citrina, and C. Mossiæ.

The ten-guinea cup for a single specimen Orchid was awarded to Mr. Miles for a fine specimen of Lælia purpurata. It is the same plant as won the Sir Trevor Lawrence's prize last year at the Royal Horticultural Society, since which it has much improved. It was an Orchid to dream of and to remember for years, and Mr. Dominy—the well-known foreman of Messrs. Veitch of King's Road, Chelsea, who was judging on this occasion—declared he had never seen a finer plant nor seldom a better collection generally than that contributed by Mr. Brymer.

The Orchids referred to were displayed to great advantage in the centre of the stand; the bars of the staging were curved into a sort of semicircle, and the plants were grouped into two crescents. These were divided by a huge Tree Fern standing on the lowest step of the platform or stage. The first crescent was filled as follows:—The highest step of the stage was occupied by four Dicksonias. These stood like giant sentinels guarding the groups of beautiful plants below. Hiding the somewhat naked stems of these Tree Ferns were Alocasias, Croton variegatum, and Palms of various kinds, and underneath them were smaller plants which performed the same kind office in hiding their pots, consisting of beautiful specimens of such charming exotic Ferns as Adiantum farleyense and A. gracillimum. This formed the background of the picture, and rarely, if ever, was a more glorious one seen either on or under canvas. On the next step nestling together, the jewels of the Show, were Orchids grouped together in the most artistic manner. The colours, &c., I need not describe, as they are all familiar to most of your readers, and I will only add that Mr. Brymer, who has so kindly sent these (the choicest specimens of his stove) has earned the gratitude not alone of the Stewards of the Bath and West of England Society, but also that of every gardener or lover of flowers who visited the tent. He has always been the greatest friend of the Society, and for years has been the great supporter of Mr. Boscawen, and now he has at last received his reward in carrying off to Dorsetshire the splendid prize so deservedly won.

But Orchids by no means constituted the whole of the attraction of that most charming tent, and I heard from more than one competent to give an opinion that there was not an imperfect specimen plant on the stand. Stove and greenhouse plants of every shade of colour, from the intense magenta of some giant Azalea to the pure white of the virgin Stephanotis, were included. The several colours were worked out by the Steward of the department in delicate gradations, not violent contrasts, but what we may almost call arrangements or harmonies of colour.

Among the exhibitors not mentioned above were Edward Walker, Esq. (gardener, Mr. Langford) of Clevelands, Dawlish, who had fine plants of Epidendrum vitellinum majus, Cattleya Aclandiæ, Cattleya Mossiæ, Oncidium papilio majus, Oncidium Weltoni, Dendrobium Bensoniæ, Masdevallia Lindeni, Cypripedium Dominianum, Masdevallia infracta, and two specimens of the curious Dove Plant Peristeria elata, and Cypripedium Sedeni. Although no prize was awarded to him yet the Judge highly commended the collection.

Another exhibitor who staged some fine Orchids was H. B. Mildmay, Esq., of Ivybridge (gardener, Mr. Salway), who had a good specimen of Vanda tricolor, also a fair plant of Cypripedium barbatum and Brassia verrucosa. J. Bulteel, Esq., also of Ivybridge (gardener, Mr. Warren), showed two good Orchids—Oncidium flexuosum and Aërides odorata major.

Sir Thomas Acland, Bart., M.P., of Killerton, Exeter (gardener, Mr. Garland), exhibited three fine plants of a variety of Cypripedium barbatum, and one of Stanhopea oculata.

J. Lawless, Esq., of The Cottage, Exeter (gardener, Mr. Cole), of the well-known family of plant-growers, exhibited a splendid collection of greenhouse and hothouse plants, Tree Ferns and others, which perhaps for variety and size were unsurpassed, especially Adiantum farleyense, Nephrolepis davallioides furcans (the finest in England), Dicksonia antarctica, also Erica tricolor Wilsoni, Erica Lindleyana, Cycas revoluta (a grand specimen), Allamanda grandiflora, Cocos Weddelliana, Kentia Fosteriana, and Cibotium princeps (a noble specimen).

Mrs. Ensor (gardener, Mr. Teed) of The Bungalow, Exeter, showed some magnificent Ferns and Palms. Edward Martin, Esq., of Nansladron, St. Austell, Cornwall (gardener, Mr. Dunn), staged a magnificent group of miscellaneous stove and greenhouse plants, including Verschaffeltia splendida, Dracæna Shepherdi, D. Fraseri, Alocasia macrorhiza variegata, Pandanus Veitchii, Croton majesticum, and a good plant of Stephanotis floribunda.

J. Bulteel, Esq., staged some very good plants. Among the most noticeable were Stephanotis floribunda, Clerodendron Balfourianum (the best I have ever seen), Bougainvillea glabra, Rhynchospermum jasminoides, Latania borbonica, Pandanus Veitchii, Ixora Prince of Orange, Dracæna ferrea, and Adiantum gracillimum.

Mr. Edwards, gardener to Col. Coryton of Pentillie Castle, Saltash, who has for some years been the active foreman of this department, brought up from Cornwall some small but well-grown specimens of Adiantum farleyense, which proved most useful in setting off the numerous Orchids exhibited. Lady Hotham sent a good specimen of Stephanotis floribunda. Joshua Dixon, Esq. (gardener, Mr. Craggs), exhibited some good plants—Dendrobium nobile (good), D. thyrsiflorum (very good), also many well-grown Palms, and two very good Ferns, &c. E. A. Sanders, Esq., of Stoke House, Exeter (gardener, Mr. Weeks), showed some magnificent specimens of Azaleas and Gloxinias. Mr. Boscawen himself exhibited some Amaryllises. The Countess of Morley (gardener, Mr. Nanscawen), sent some cut Camellias grown out of doors at Whiteway. I must not omit the names of Mr. Brown of Exeter, who supplied the most beautiful, though somewhat small in size, collection of Pelargoniums; Mr. Noble of Sunningdale, who showed a good lot of Rhododendrons; Mr. Jackman of Woking, who showed a good collection of early-blooming Clematises; and Mr. Laing, who brought a fine collection of Begonias, which indeed proved one of the great attractions of the Show.

Although there was no exhibition of fruit, yet John Dawe, Esq., the well-known and popular lawyer of Exeter, kindly sent, for the benefit of those who cared to see forced fruit, some large and well-coloured Peaches.

Far away from dear old Devon with its lovely gardens and picturesque country will the Bath and West of England hold their next Show. The orchards, full of white and pink blossoms which are now making the face of Nature here a thing of beauty and a too transient joy, will be exchanged for the high Malvern Hills. Whether I see the horticultural tent or not I doubt if it will come up to—it cannot surpass—the lovely sight with which Mr. Boscawen this year tried to civilise a—WYLD SAVAGE.

DEATH OF DR. DAVID MOORE, F.L.S.

IT is with unfeigned regret that we record the death of Dr. David Moore, Director of Glasnevin Botanic Garden, Dublin. For some time past he had suffered from diabetes, and this disease terminated fatally on the morning of Monday last, the 9th inst.

Dr. Moore was a native of Dundee, and in early life commenced his career as a gardener in the gardens of the Earl of Camperdown, at Camperdown near Dundee. He afterwards went to the nurseries of the late Mr. James Cunningham at Comely Bank, Edinburgh, where he remained till 1828, when he left to take the appointment of assistant to the late Dr. Mackay, Director of the Dublin University Botanic Garden. Subsequently he was engaged on the Geological Survey of Ireland, and in 1838 he was appointed Curator of the Royal Dublin Society's Botanic Garden at Glasnevin, a position he honourably filled till the day of his death.

Dr. Moore was a steady and modest worker in the field of botanical and horticultural science; and as a recognition of his services the University of Zurich conferred upon him the degree of Doctor of Philosophy in 1865. He was author of "Cybele Hibernica," in conjunction with Mr. A. G. More; of "Notices of British Grasses," "Irish Mosses," and numerous papers scattered about in the transactions of learned societies and periodicals. Like our friend the late Dr. Karl Koch, whose death we noticed a fortnight ago, Dr. Moore was a constant attendant at the International Horticultural Exhibitions and Botanical Congresses which have been held all over Europe during the last few years, as one of the representatives of the botany and horticulture of the United Kingdom. Dr. Moore leaves a widow and seven children, of

the latter of whom his son, Mr. F. W. Moore, is now Curator of the University Botanic Garden, Dublin.

INTERNATIONAL HORTICULTURAL EXHIBITION.

(*From a Correspondent.*)

A MEETING of the standing Committee of the International Horticultural Exhibition was held at South Kensington on Tuesday last, to receive a deputation appointed at Mr. Wills' meeting which was held in the Royal Albert Hall a fortnight ago. The object of this deputation was to confer with and urge upon the standing Committee the necessity for their immediate action towards holding an International Horticultural Exhibition in London in 1880. The standing Committee had before decided that it was unadvisable to hold such a meeting; but Mr. Wills, though a member of the Committee, strongly differing from his colleagues in this view of the matter, decided upon taking action by himself, and has intimated his intention of carrying it out to a successful issue unaided, if he cannot get the country to support him.

The chair was taken by Sir Daniel Cooper, Bart., and the deputation having been received, the resolutions passed at the meeting in the Royal Albert Hall were read, the deputation afterwards withdrawing. Mr. Wills then proposed a resolution to the effect that the Committee should take steps forthwith for carrying out the Show next year. When this was put to the meeting the Chairman and all the members present voted against it with the exception of Mr. Wills and Mr. Richard Dean. Mr. Wills thereupon moved a resolution to abolish the standing Committee as being obstructive, and to give place to one of his own nomination, and he expressed himself as most dissatisfied, he being confident of being able to carry out an International Show in 1880 successfully.

NOTES ON VILLA AND SUBURBAN GARDENING.

IT is now a busy time in the kitchen garden department, as there is scarcely a crop but what requires immediate attention. Many gardens have been recently drenched by heavy rains. The first opportunity must now be embraced to check the rapid growth of weeds. Crops sown in drills may be cleaned by running the hoe down between the rows, the weeds being removed by the hand from amongst plants. This will apply particularly to Carrots, Onions, and plants of the Cabbage family.

Parsnips are now well established, and require thinning to 9 inches apart; this is best performed by the hand, but persons accustomed to the work can chop them out regularly with a hoe. Carrots, excepting the main crop, may have the thinnings drawn as required, and used in a small state. Onions may be treated in the same manner, but generally speaking there are more Onions than are required for this purpose; therefore if the crop is heavy they had better be thinned to about 6 inches apart, and the thinnings either used at once or pricked out upon another piece of ground, where they will make useful-sized bulbs for pickling purposes. The winter-sown varieties that were transplanted early are now growing rapidly, and should have all seed stems cut off as soon as visible, for if retained they exhaust the bulbs and spoil the crop. Cauliflowers are well established, and at present are growing rapidly. When dry give them occasionally a good watering with liquid manure. Potatoes, excepting the very latest planted, have attained a height of several inches, and cultivators will be glad of the opportunity afforded by a little dry weather to kill all weeds and to draw up the soil around the plants. Notwithstanding that early planted Potatoes were injured by the late frost they are now looking well.

The Pea crop is also very promising. The earliest-sown varieties are in bloom, and only require bright sunshine to fill out their pods. Those recently sown must be attended to in earthing-up and staking. Another sowing may be yet made, but this time the seed should be sown in trenches prepared similar to Celery trenches. By this means late Peas may be grown successfully, and they will pass the summer comparatively free from mildew. Ne Plus Ultra and Champion of England are very good varieties for the present sowing.

Asparagus is now tolerably plentiful, and is best cut when from 5 to 6 inches in length, as the heads are then close, sweet, and tender, and this plan obviates the danger of cutting the younger growing heads, which is frequently the case when it is cut below the surface of the bed. Thin Turnips to a few inches apart, and make other sowings according to the demand. Veitch's Red Globe is a most excellent variety both in flavour and shape. Both the French or Dwarf Bean and Scarlet Runners must be examined, and all blanks must be filled up. Other sowings may yet be made with the prospect of a good crop that will almost overtake the earliest sown, which, owing to the cloudy weather, are somewhat weak. If slugs are troublesome dust the plants with lime. Snails and slugs are very partial to these Beans, and if not prevented will destroy the whole crop. As the Scarlet Runners advance in growth they should have some strong sticks placed to them, and it is important that these be afforded in good time, and before the plants produce long twining growths. Where Broccoli and other plants of the Cabbage family are too thick in the seed beds it is best to prick them out a few inches apart on a spare border, which will prevent their becoming drawn, and they will be sturdy and dwarf when finally transplanted.

Strawberries are showing abundance of bloom. This is now the time to place some clean straw or litter to prevent the fruit from becoming gritty. Clean chopped straw is the very best material, but is not always procurable; long litter from the stable, if shaken out and left exposed to bleach, answers the purpose well, and in a short time becomes sweet and clean. We have used lawn mowings, but cannot recommend such short grass, for in wet weather it has a tendency to decay, and renders the fruit mouldy.

Roses in most cases are growing freely, but the maggot is very plentiful. There is no better plan for destroying this pest than to squeeze the curled leaf between the finger and the thumb, afterwards removing the perforated foliage at leisure. Stake any standards that have become loose from their supports, and remove all growths of the Briar, whether from the stem or the roots.

Chrysanthemums will now require another shift into 9-inch pots, this size being suitable for producing superior blooms. Train and stop the growths of plants required for specimens.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE last sowing of late Peas should now be made. Any sowings after this should be of early kinds. Let there be no delay in earthing and staking Peas, mulching after watering with liquid manure if the weather be dry and the soil is light and shallow. Potatoes should be earthed, and if winter vegetables are to be planted between the rows the spaces should be forked, placing the plants in as soon as ready. Let a good breadth of French Beans be sown in a sheltered situation, Negro Long-podded being a very prolific hardy variety. The Celery put out under handlights will now be sufficiently advanced to admit of a good earthing, not allowing the soil to bury the centre of the plants. Continue to prepare trenches (utilising the spaces between them for crops of Lettuce), and plant out and prick out from the seed beds plants for later crops. There must not be any neglect in watering Celery should dry weather prevail, freely applying liquid manure. Successional plantings of Cauliflowers should be made every fortnight or three weeks, selecting plants of a suitable size from the later sowings preferably to plants that are older, as the latter not unfrequently "button." A little more seed may be sown of some quickly-heading Cauliflowers. Plants from this sowing often afford nice heads, the plants being lifted and protected in frames should the autumn and early winter be favourable. Sow Turnips and Spinach upon a north border about once a fortnight, and Radishes and Lettuce at similar intervals, so as to maintain the succession. Globe Artichokes in bearing, as also those planted this spring for autumn supply, should be liberally watered in addition to being well mulched; indeed all crops—such as Peas, Cauliflowers, Runner and Dwarf Beans—that are liable to suffer from drought should be mulched, which not only saves watering, but contributes to the quality and continuance of the crops. The Rosette Colewort is deserving of cultivation on account of its productiveness and hardy constitution. The seed should be sown about the 20th of this month, pricking out the seedlings as soon as they can be handled to render them sturdy, and when ready plant them 15 inches apart every way. Take advantage of suitable weather to plant out Broccoli, Savoys, Brussels Sprouts, &c., for winter supply. Seakale should have the crowns thinned to two or three to each plant, removing the smallest with a view to increase the vigour of the remainder. Broad Beans may still be sown, but the earlier the better, and if the autumn be fine they will afford a late supply. Asparagus intended to be cut from early next season should have the cutting discontinued at once, as it is very important that the plants have sufficient time for growth, and that the buds for next season's supply may be matured; more Asparagus is ruined by too hard and prolonged cutting than by anything else. Seedling plants of this and Seakale should be thinned to a foot distance apart. Cucumbers and Vegetable Marrows under handlights should be duly attended to with water, and have ventilation freely, so as to harden the plants whenever the weather is favourable, earthing up if necessary, and when the vines begin to lengthen elevate the handlight to allow them to pass underneath. Supply Dwarf Beans in pits, &c., with liquid manure, and keep the pods of those in bearing closely gathered. Complete at the earliest opportunity the potting of Capsicums, Chilies, Egg Plants, &c., placing them in pits or frames. Tomatoes should be copiously supplied with water in dry weather, especially those against walls, stopping them one joint beyond the first truss if they are not disposed to show fruit freely or are not sufficiently branched for covering the space.

HARDY FRUIT GARDEN.

The thinning of Apricots should by this time be completed; if not, as the crop is abundant it must not be done with a timid hand, as after so many years of not over-abundant crops it is likely an effort will be made to bring up arrears. Leave no more than sufficient for a full crop. The leading shoots of Apricots when required for filling vacant spaces on the walls should be tied or nailed in as they advance, the forerights being stopped to three or four leaves so as to induce the early formation of short-jointed spurs and well-matured buds. Trees that are overcrowded, but are otherwise well furnished with young and healthy wood, may now have any barren bare wood or unfruitful spurs removed, supplying its place with young healthy growths. Look well after grubs, and when the leaves are seen folded together carefully squeeze or unfold the leaves and destroy the grubs, or serious damage will be done both to foliage and fruit. Complete the disbudding of Peaches and Nectarines if not already done, thinning the fruit without further delay, leaving about one-third more fruit than will ultimately be allowed to ripen to provide for casualties. Some cultivators are very particular in thinning the fruit of trees under glass, but never thin fruit on walls sufficiently, which it is equally desirable to have it of large size and good quality. Syringe with tobacco water if aphides appear, continuing to remove any blistered leaves by degrees, as with more favourable weather the trees will furnish themselves with healthy foliage. If mildew appear on the fruit rub the spots with flowers of sulphur. Pears should not be allowed to make several inches of growth, but be stopped at the third leaf, similar remarks applying to Cherries and Plums, the extensions being trained in their full length, as also those for filling in vacant space, which should be trained about 1 foot apart. Morello Cherries should have all the wood laid in for next year's bearing. It is not usual to stop Gooseberries, but if the side shoots are pinched when they have made two or three leaves it favours the present crop and causes fruitful spurs to be formed for the future. Similar remarks apply to Red and White Currants. Strawberries should be mulched with straw or other material to keep the fruit clean. Chopped straw answers very well, the sharp edges not being at all liked by slugs, but the longest litter from the stable yard is suitable if applied in good time so as to become bleached and clean before the fruit begins to ripen. Where large fruits are desired for dessert or exhibition the trusses should be well thinned as soon as the best swelling fruit can be detected, leaving about three of the finest to each truss, securing them to small sticks so as to admit of their having the full advantage of sun and air, which will insure better colouring and improve the quality, indeed fine examples of the choicer kinds can scarcely be had in a wet season without some such means being adopted. A good soaking of water or liquid manure should be given so soon as the fruit is fairly set, the mulching keeping the roots cool and moist during the swelling of the fruit.

FRUIT HOUSES.

Pines.—When the fruits commence to colour syringing must cease, but the supply of water at the roots must be maintained, affording it whenever necessary. With a view to improve the quality of the fruit ventilate whenever circumstances permit, but do not allow the temperature to fall below 80° in the day, applying fire heat to maintain a night temperature of 70° to 75°, gradually reducing the moisture in the house, which is essential to the fruit ripening perfectly. Queens and Providences started into fruit early in February will ripen this month, coming in about three weeks or a month before Smooth Cayenne, Charlotte Rothschild, and similar kinds started at the same time and under the same conditions; they afford a good successional supply, which may be still further extended by removing some of the plants with the fruits to a cooler house. Although the Providence is not nearly equal to a Queen in quality, yet its size being superior a limited number should be grown, as large fruits are not unfrequently required. The heat at the roots must be maintained at 80° to 90°, except such plants as are being rested, as advised in last calendar, before starting. Under ordinary circumstances fire heat may soon be dispensed with for successional stock, as to continue it unless absolutely needful is more injurious than beneficial. Ventilate the house at 75°, increasing it as the temperature rises until it reaches 85°, when it will be needful to admit air at the top and sides of the house plentifully, diminishing it by degrees in the afternoon, and finally closing the house at 80°, sprinkling lightly over the plants. The early-fruiting plants as they finish off will afford suckers, which should be taken off in sufficient quantity to meet the demand and started at once, which will afford plants for fruiting about this time next year, forming a supplementary lot to suckers started last March. Afford them similar treatment to those potted in March, only they will require more attention as to water and careful shading.

Melons.—The last sowing should be made at once for planting in dung-heated frames or pits, the plants from which, under favourable circumstances, will afford fruit in late September. Those with light well-heated houses may continue to make sowings as required up to the close of July. The plants from the last-named will continue the supply up to the beginning of November, after which it is scarcely possible to have fruit of first-class quality. A good bottom heat is still requisite for young plants about to be turned out, which will be all that is necessary under ordinary circumstances, though a little fire heat may be afforded at night. Remove laterals freely from plants that have the fruit swelling freely, supporting the fruit as previously advised. Afford plenty of moisture both at the roots and in the atmosphere, stopping, training, and earthing-up after the fruits have set. Plants with the fruit ripening should have a plentiful supply of fresh air, and no more water than to maintain the foliage fresh. Continue to fertilise the blossoms every day until a sufficient number are set on each plant, it being essential to a good set that the atmosphere be dry. Conserve sun heat by closing pits and frames early, sprinkling overhead those plants with the fruit swelling, and keep the growths well regulated, going over the plants at least once a week. Shade may be necessary under very bright sun, but do not employ it for more than an hour or two at midday.

PLANT HOUSES.

Stove.—Gardenias which have flowered may be cut back, watering them carefully until the plants start growing, when they should have about half the soil removed and be returned to pots about 2 inches larger. Young plants that were struck in spring should be well attended to in potting, also maintaining a brisk moist heat. Young plants raised from cuttings each spring are preferable to older plants, but it is necessary that they be well grown, and where there is not the necessary heat maintained to get them on the old plants must not be destroyed. G. florida and G. Fortunei have the largest flowers; G. intermedia has smaller flowers, but is none the less useful; and G. radicans major is of moderate growth. G. citriodora flowers naturally in winter, and its sweet flowers may be mounted for bouquets, somewhat resembling Orange blossom. They all do well in turfy loam, and require encouragement after flowering to make a good growth. Euphorbia splendens is very useful for button holes and yields a quantity of flowers. It requires plenty of light and an open free soil. Poinsettia cuttings that were inserted some time ago will now be rooted, and should at once be potted; 3 or 4-inch pots are quite large enough to begin with, employing turfy loam with a fifth of decayed dung or leaf soil and a little sand. After the cuttings are established in the pots give them a fair amount of air, placing them as near the glass as possible. Successional cuttings should be inserted, taking them off with a heel, they striking freely in a frame kept rather close. Euphorbia jacquiniæflora cuttings should be potted as soon as struck, giving them similar pots and compost to Poinsettias, and when well established pinch out their points to induce them to break. The earliest-struck plants should be shifted into 7 or 8-inch pots, watering carefully until the plants have rooted into the fresh compost. Old plants required to be grown into specimens may have 10 or 12-inch pots, and if well attended to are fine decorative plants for a conservatory. Plumbago rosea and P. coccinea superba require to be well stopped, and not have too much heat, but plenty of moisture and light. Aphelandras from spring-struck cuttings should be encouraged to make growth, shifting them into 6-inch pots; and they, as well as other plants from cuttings this spring intended for winter flowering, should be encouraged to make free growth by shifting them into larger pots as required, and keeping the plants near to the glass to render them sturdy. Gesnera cinnabarina, G. exoniensis, G. zebrina, as well as Tydeas, should be started without delay to ensure their making a good growth and flowering satisfactorily in winter. Gloxinias advanced for flowering should be alternately watered with liquid manure, and those in small pots should be shifted into larger before they become rootbound. Achimenes intended for late blooming should be put in the pots or pans. They require light moderately airy positions and plenty of water when growing freely, but anything approaching to a sodden state should be avoided.

Orchids.—Inspect the plants generally, and any that have made a vigorous growth and have filled their pots with roots should now have a shift. In some cases the roots attach themselves so firmly to the pot that it is impossible to turn them out without injury to the plants. In such cases pots two sizes larger should be employed, carefully placing the one containing the plant in the larger, working in some crocks and sphagnum, care being taken not to overpot, as Orchids do not require large pots nor a great mass of material to root into. Any plants in baskets which have become too small should have the roots carefully removed from the wood with a thin knife, and be placed in new but not too large baskets, which are quite as bad as too large pots. All East Indian plants not requiring shifting should be top-dressed with fresh sphagnum. Examine the blocks of wood, and if any are found decayed replace them with new ones, which will enable the plants to make fresh roots before the close of the growing season. Dendrobiums must receive liberal treatment to enable them to make strong growth and be well matured. Syringe them and all East Indian plants frequently, especially on fine days. Cypripediums require syringing and watering freely, keeping plenty of moisture in the house, and if a little liquid manure is given about twice a week it will be an advantage. Increase the ventilation in the Cattleya house, and shade only to pre-

vent scorching. Any plants that have the growths approaching maturity should have the moisture diminished, and be more exposed to sun and air, so as to gradually induce rest. Miltonias which have completed their growth should be removed to a cooler house, and have water only to prevent the bulbs shrivelling. Odontoglossums require constant attention, giving air early in the morning so as to keep a cool temperature and a sweet atmosphere, affording copious supplies of water at the roots and frequent syringings overhead, which will induce the growth of large plump clean pseudobulbs. Masdevallias do better in a cool north pit for the next two or three months, as when these plants are kept too warm they become drawn and weakly; frequently sponge the leaves to keep down thrips. Anguloas will now require large supplies of water. Oncidiums starting into growth may be repotted, most of which require a greater heat when making their growth than Odontoglossums. Fumigate frequently and carefully to keep down the troublesome yellow thrips, frequent sponging being a good mode of riddance, looking over the plants frequently for scale, which is best picked off, afterwards sponging the foliage carefully.

TRADE CATALOGUE RECEIVED.

Samuel Yates, Old Millgate, Manchester.—*Illustrated Catalogue of Beehives, &c.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

LEARNING GARDENING (*Cottager*).—You will experience considerable difficulty in apprenticing your son with or without a premium in a gentleman's garden until he has had some practice. If you could obtain employment for him in some garden or nursery in your locality for a year or two he would, if attentive and diligent, make friends who would interest themselves in his behalf and obtain for him a situation as improver in some larger establishment. A small garden will do for a beginning. Only earnest, trustworthy, intelligent, and fairly well educated youths can hope to attain to good positions as gardeners. All papers of the kind you name are published in London, and are readily obtainable through town and country booksellers.

BOTTOM HEAT FOR WINDOW PLANTS (*A Lover of Rose Shows*).—A slight bottom heat would no doubt be beneficial for the plants you name, but they should also be afforded shelter from high winds and cold drenching rains. If you can afford them this shelter the bottom heat would accelerate the flowering of the Fuchsias, but it is doubtful if the heat would not induce the Pelargoniums to make an excessive growth of foliage. The other plants you name are foliage plants; plunge these in the warmest portion of the bed, and the Geraniums in the coldest. The temperature at the bottom of the pots of the foliage plants should not exceed 85°. Do not overpot the plants. The shift should only be large enough to enable you to press the soil down between the roots and the sides of the pots without crushing the balls of the plants. When shifted the soil in which the plants are growing must be moderately moist, not wet nor yet dry, and the new soil must be in the same condition. It must be pressed as firmly as the old soil, or the water will not drain through the former. Do not fill the pots too full of soil, but allow an inch of space from the surface of the soil to the rims of the pots for holding water sufficient to penetrate the entire mass of soil. Employ clean pots and drain them well, protecting the drainage with a little moss or fibre shaken from the soil.

NATURE OF SOIL (*J. S. H.*).—The subsoil is ferruginous sand with a slight trace of clay. It possesses no manurial value, and unless you wish to deepen the surface soil we should let the sand remain where it is. In case you wish to render the cultivable soil deeper you may bring up a slight portion of the sand yearly—about an inch or so, and mix it with the soil as the digging proceeds. After you have cropped the ground for a few years and have applied manure freely, a small portion of the subsoil might with advantage be brought up, but at present we should not disturb it except, as above stated, for the purpose of deepening the soil.

IVY FOR WALL (*A. H.*).—In order to expedite the growth of Ivy the ground previously to planting should be trenched 2 feet deep, and be enriched with decomposed farmyard manure, vegetable refuse, and the ashes of burnt rubbish of any kind. The plants should be healthy and well rooted when planted, and be watered as required in dry weather. No other evergreen climbing plant is so good for covering a wall as Ivy, and the old Irish Ivy (Hedera helix canariensis), is not surpassed for general usefulness. Many other Ivies, however, are well worthy of attention. Hedera dentata is the largest-leaved Ivy in cultivation. It has a very long leafstalk, and its hard leathery foliage stands out boldly and effectively. H. Rægneriana is another bold and effective kind with magnificent large, glossy, heart-shaped leaves. H. latifolia maculata is a handsome marbled-foliaged variety of canariensis. They are both of very free growth. H. azorica, sagittæfolia, and taurica are also very useful; the last-named has much-divided small and neat distinct leaves. There are also several other very pretty variegated sorts, such as H. aurea, argentea, and elegantissima, which do not grow quite so fast as the foregoing, but are indispensable if a collection is aimed at, and are very useful for covering buttresses and small prominent positions, the more robust growers being planted to cover the broadest spaces. The green varieties of Ivy delight in rich soil, which induces rapid growth; but to the Golden and other variegated sorts rich soil is detrimental, for if forced into exuberant growth they are apt to sport from their variegation. In reference to your third question we advise you to apply to the Meadow Foundry Company, Mansfield, Notts.

PEACH LEAVES SPOTTED (*D. B.*).—The leaves are affected by what is known as the "yellows," and is due to constitutional weakness, the supply of sap not being equal to the demand of the head. The only remedy is to lift the roots carefully—a portion during each year—and work in some fresh loam among them, and mulch with some short manure so as to encourage the formation of roots from near the collar of the trees. At the present we should water with some weak guano water (1 lb. to twenty gallons of water), mulching the surface with short half-decayed manure. The leaves appear to have been subjected to an overdose of tobacco smoke, which will not only cause them to spot, but also to fall in quantity, and the fruit likewise, though not so readily as the leaves.

DIVIDING BORDER AURICULAS (*G. O. S.*).—It should be done when the flowering is past. Each crown, if taken off with a portion of root and planted up to the leaves, will grow freely if duly attended to with water if the weather be dry; or the divisions may be planted in a shady border, where they may remain until autumn and then be moved to their flowering quarters.

HARDY CYCLAMENS (*Idem*).—Cyclamen coum vernum, purplish red, succeeds on rockwork with an east or west aspect, or where shaded from midday sun in summer. C. hederæfolium and var. album, C. neapolitanum, and C. europæum succeed in well-drained soil in borders shaded from midday sun in summer, or where they do not suffer from drought. All flower in autumn, and we have seen them thriving luxuriantly in vegetable soil in thinly shaded borders, the shade being from deciduous trees. C. repandum flowers in April, and is a fine rose colour, doing best on rockwork in strong fissures shaded from midday sun, and well drained in winter.

SCROPHULARIA MARILANDICA (*J. House*).—This plant is a native of North America and Siberia, and closely resembles S. nodosa, except that the stems are taller, as it grows to a height of 3 to 4 feet. Root fibrous, perennial. Stalks four-cornered. Flowers in bunches on the upper part of the stalk like those of S. nodosa. Leaves cordate at the base.

MARÉCHAL NIEL ROSE NOT EXPANDING (*J. H. W.*).—As the temperature and ventilation appear to have been right we can only attribute the failure referred to to a lack of nourishment. The plants may have grown freely last summer, but still not be able to perfect their flowers this year. If you can plant them out in good soil we think they will flower freely and well: if you cannot plant them out we can only suggest rich top-dressings of manure, placing rims of zinc or pieces of broken slate round the pots, to keep the manure in its place and to enable the water to pass through it and the soil. Your object must be to promote additional root-action, and this accomplished and water given as required—soot water occasionally—you may expect good blooms.

POTTING TEA ROSES (*Sandhurst*).—As you require the Roses for pot culture you had better repot them at once, employing pots an inch or two larger in diameter than those in which they are now. The soil should consist of two-thirds of good turfy loam and one-third of old decayed manure; and if an 8-inch potful of crushed bones and the same quantity of soot can be added to each barrowful of soil the compost will be much improved. Employ clean pots, drain them well, and pot firmly, not filling the pots too full of soil. Place the plants in a very light and well-ventilated house, and do not permit an insect of any kind to remain on them. Unless your house is specially suited for growing Roses you had better plunge the pots in ashes in the open air after the roots have permeated the fresh soil. The growths, when lengthy, may be trained round three or four sticks inserted in each pot. You may thus produce fine plants for affording blooms next spring and summer. Treat the Arums as advised by Mr. Bardney on page 416 of our last week's issue.

PLANTING LILY OF THE VALLEY (*A Beginner*).—During fine weather in autumn, or early in spring before the crowns commence swelling, you may either dig up the whole bed and replant the crowns in small patches in fresh soil, or take out patches from the beds and plant them, placing manure in the spaces made by the removal of the plants: indeed the entire bed should be mulched with manure. There should be spaces of at least 6 inches from patch to patch in both the old bed and the new. If you require very fine crowns and flowers instead of a dense mass of Lilies, twice the space named should be afforded the patches. The ground between the plants should be thickly covered with manure, which should remain throughout the summer months.

LEEKS, MELONS, AND TOMATOES (*A Lady*).—Transplant the Leeks as you propose, and eventually transfer them to trenches, or a portion may be planted deeply a foot apart in well-manured ground. Those raised in boxes and in the open ground will do equally well. If you do not water the stems of the Melons that have been twisted and hence split, the plants will probably grow and ripen their crop. You had better also keep the main stem of the plants dry, applying water through the spout of the watering pot between the stems and under the leaves. A slight sprinkling of the foliage when closing the frame after a hot day will refresh the plants; but in dull weather the foliage should not be sprinkled. If you stop the growths of the Tomatoes just above the fruit, and keep the atmosphere of the house rather dry, admitting also plenty of air, the blossoms will set freely.

SALTING ASPARAGUS BEDS (*Ignoramus*).—You may apply salt at the rate of about 3 ozs. per square yard at once, and repeat the application in a fortnight. Assuming that the beds are well drained, copious applications of liquid manure—such as drainings from dunghills, or guano and salt, half an ounce of the former and half the quantity of the latter to each gallon of water, and applied in July and August—will be highly beneficial. It is important that the beds are free from weeds, or the manure applied will be to a great extent wasted. Salt may be applied of sufficient strength to kill small weeds without injuring the Asparagus. Weeds never grow on our Asparagus beds in consequence of the salting the beds receive annually.

WHITE GRAPES FOR COOL VINERY (*C. M.*).—The most generally useful and free-bearing variety is Foster's White Seedling. As, however, you prefer Frontignans, you may plant the Early Saumur, Early Smyrna, and Early White Frontignans, all of which will succeed with what is known as Black Hamburgh treatment. White Tokay requires heat to produce it in good condition. Duke of Buccleuch is the grandest of white Grapes, succeeding in a cool vinery, but some cultivators fail to produce it in good condition.

ANTS ATTACKING ROSES (*E. R. P.*).—It is very unusual for ants to attack Roses to the extent of "injuring them until the buds fall off," but still we know they do attack the buds occasionally, for during the present spring we observed a number of buds of Maréchal Niel in Mr. Baring's Rose house at Coombe Cottage much injured by ants. They appeared to attack the buds when they were nearly as large as Almonds, eating into them the same as wasps eat into fruit—almost hiding themselves in the food store. Their attacks were so persistent that Mr. Baker, the gardener, had to be constantly on the alert to rub off the insects as they clustered on the buds. We had previously heard of ants attacking Rose buds, but that was the first

instance of their doing so that came under our notice. The evidence in this case was very conclusive, as the attack was an inveterate one, and is not likely to be soon forgotten by Mr. Baring, nor yet by Mr. Moorman, who was also a witness of the destructiveness of the ants in the manner indicated. As a preventive of the attacks we can only suggest rendering the buds distasteful to the ants by syringing the trees with quassia and tobacco water. For making the former see reply to "T. H. S.," on page 409, add about half a pint of tobacco water, not more, to each gallon of the quassia water. Tobacco water can be made by pouring half a gallon of boiling water on an ounce of strong tobacco, allowing it to remain until cold, then straining it for use.

SOIL FOR POTTING (*O. G. R.*).—No soil is so good for the majority of softwooded plants as that of which decayed turfy loam is the basis. In country districts this can usually be obtained at little or no cost; but in towns such compost is necessarily much more costly, and consequently such expedients as those you suggest, of using old potting soil over again with such manurial additions as can be obtained, are not unfrequently resorted to. If the soil was turfy when first used, and has not been much exhausted, it may be used again for the raising of seeds or for the potting of plants that have not to remain in their pots long, such as bedding plants; but for growing specimen plants for permanent decorative purposes we should never use old soil if we could obtain new. When old soil must be used for potting purposes its fertility may be considerably increased by a liberal admixture of wood ashes.

STOPPING TOMATOES (*Idem*).—When the plants have grown 3 or 4 feet high we take off the tops. The axillary growths resulting, the plants being strong and in good condition, always show flowers. These side shoots we pinch off immediately beyond the fruit, which then swells freely. Half a dozen of large clusters form a good crop for a plant, and the fruit is generally finer and ripens sooner and better than if more clusters are permitted. The fruit should be allowed all the sun possible by the removal of such growths and leaves as are seen to shade the clusters, retaining the foliage on other portions of the plant. When the fruit is swelling freely the plants require a considerable quantity of water.

VINES INJURED BY SULPHUR (*E. D., Brecon*).—We can only suggest that you encourage a rather free growth of the laterals, but not to such an extent as to cause overcrowding. This will restore the Vines to health, but of course will not render the injured berries clear and spotless. The worst of these you must cut out, and by maintaining a genial atmosphere and by ventilating carefully you will aid the swelling of the remainder, and so reduce the injury to a minimum. There are no thrips on the leaves, but if there are any in the house you must fumigate moderately and frequently after the Grapes have been thinned.

ANTS EATING CABBAGE PLANTS (*R. E. M.*).—We have never known ants to attack a plantation of newly pricked-off Cabbage and Broccoli plants so persistently as to "fairly eat the plants off by the collar." Are you certain the ants are the depredators? But whether they are or not, we know of no safer preventive of the injury than heavy dustings of fresh soot thrown well round the stems of the plants. Applications of salt or guano would be equally effective in eradicating the insects, but if sprinkled freely round the young plants would injure them. If any of our correspondents can suggest a better and safer remedy than soot for the purpose indicated we shall be glad to publish it.

NAMES OF PLANTS (*W. Hartley*).—It is a Cytisus, probably C. alpinus, but it is difficult to determine the species from the small scrap sent. (*J. C. Kennedy*).—Oncidium Wentworthianum. (*C. T. D.*).—Cattleya Mossiæ, a native of La Guayra. (*Zulu*).—1, Oncidium stelligerum; 2, O. obryzatum; 3, Cyrtomium anomophyllum; 4, Cerasus virginiana. (*T. Paton*).—1, Ornithogalum nutans; 2, Leucojum æstivum; 3, Alonsoa Warscewicsii; 4, Euphorbia Cyparissias. (*T. C.*).—It is an Ornithogalum, but it is impossible to determine the species from the fragment sent. (*J. C. W.*).—Pyrus Aria, White Beam Tree. (*O. W. D.*).—The specimen too withered for identification; it appears to be a species of Cape Pelargonium. (*Norfolk*).—Kerria japonica flore-pleno, known also as Corchorus japonicus. (*J. T.*).—It is a variety of Primula intermedia, and is not uncommon, plants being sold by florists at a shilling each. (*A Young Gardener*).—1, Statice Bonducella; 2, It appears to be an Alocasia, but which species it is impossible to determine; 3, Mimulus, probably M. cupreus, but specimen very imperfect; 4, Isolepis gracilis; 5, Phlebodium sporodocarpum; 6, It appears to be Pteris aquilina, but the fronds are too much crushed for identification. All the specimens you have sent are inferior, and the system of numbering and packing is a very confused one. Your other questions shall be attended to. (*C. H. B.*).—Halesia tetraptera, the Snowdrop Tree.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

THE SUCKLING AND FEEDING OF CALVES FOR VEAL.

THIS subject is deserving of more attention than has lately been given to it, for in consequence of the enormous importations from abroad, and particularly from America, of provisions—such as cheese, butter, &c., there has been much greater difficulty than we have ever before experienced in selling these dairy products. This has for some time past induced a large number of dairy farmers to give up making cheese and selling milk instead by sending it to the metropolis or other large towns. The supply of milk has in consequence lately exceeded the demand, and in some instances reduced the selling price of that article as delivered from the country districts. The advantages derived by dairy farmers whose farms are situated near to towns and the principal railway stations have enabled them to reap the full benefit of their position in the sale of milk, and they have therefore possessed a sort of monopoly of the trade. Others, however, not so situated have turned their attention to the suckling and feeding of calves for veal, and where the details of this business have been looked after and superintended with industry and intelligence it has proved quite as profitable, if not more so, than sending milk away for sale. In order that the home farmer may be enabled to carry it out with the greatest advantage and success we propose to consider the subject in detail; and although we have at times made passing allusions to this matter, it was only to call attention to the subject in the interest of the home farmer who might not have the advantage of selling milk as above stated.

The cattle best adapted for a suckling dairy are undoubtedly the Shorthorns, in consequence of the large quantity of milk they yield. Although we have instances in which the Alderney and Ayrshire cows gave as much milk as the Shorthorns, yet, being richer, it is better adapted for butter-making than for suckling calves for veal, as it is well known amongst dairy farmers that quantity of milk is of much more consequence than quality in suckling, the poor milch cows being preferred. Having kept a suckling dairy for a number of years we give it as the result of our experience, that instead of the best or richest milk making the best veal it is quite the reverse, for we have invariably found that the Alderney or Alderney cross-bred cows make the worst calves, not only in quality but in weight for age and in colour of the veal when killed, as well as the general health of the calves during the time of suckling and feeding.

The next point to be considered is the breed of calves best calculated to return the greatest profit in quantity and quality of veal for a given quantity of milk consumed. Our experience enables us to say that we prefer calves for suckling of the breeds as we here name them, taking first the well-bred Hereford, next the Devon, then the Sussex, and last of all the Shorthorn—in fact, we have often found that calves of the Alderney or ordinary breed are not worth attention compared with those above named purchased at a fair price at a few days old. The Hereford calves we find make heavy weight for their age, and the veal is sure to be of the clearest colour. The Devon calves are usually of remarkably good quality and die of a good colour, though not so heavy in weight of a given age; but if there is any difference the butcher prefers them to the Hereford, and probably often gives 2*d.* per stone more money for them. The Sussex breed are nearly as good for veal, but the Shorthorns, whatever their advantages are as a breed, do not furnish veal of such good quality as the other three breeds, being coarser and showing more bone in proportion to the meat.

As we have now stated what we have found the best cows for suckling and also the best calves for making veal, we must refer to the opportunities of obtaining calves. In the cheese-making districts there is little or no difficulty in obtaining them in large numbers, because it is these parts of the country which supply the various counties in England. There is, however, more difficulty now than there was twenty years ago of obtaining a supply of good Hereford and Devon calves, because the Shorthorn cattle have increased so much to the exclusion of the Hereford and Devon breeds in the cheese-making districts of the southern and south-western counties. One thing is much to be deplored—that large numbers of well-bred calves are killed for veal in the metropolis from cows purchased for the town dairies at a few days or a week old, so that a much larger trade may be done by sending young calves into the country districts for rearing if they were sought for.

The houses for the cows and calves are of great importance, and our plan is to have the cows in boxes standing tethered two in each and their calves tethered behind them. These boxes are about 9 feet wide by 12 feet long, filled with earth at the bottom about 18 inches deep and littered with short straw as cleanliness dictates. This at all times furnishes a pure atmosphere for the calves to live in, particularly in the summer months when the cows go out to graze and only come in to suckle the calves twice in the twenty-four hours. The boxes should be made warm and the light excluded as much as possible, so that the calves should be induced to lie and sleep the greater part of the time between the hours of feeding and suckling, and also to prevent them being disturbed and annoyed by flies, which always follow the sunlight. In ordinary cowsheds the calves seldom have good healthy lairs, the air being often more or less impregnated with ammonia. This is often the cause of diarrhœa in calves, the most fatal and damaging complaint to which they are subject. It should be borne in mind that it is of far more consequence to maintain the health of veal calves than of the weaned calves, because the latter may live through it without any serious injury; but not so with the former, for although they may recover their health they will never recover the time lost whilst suffering from disease of any kind.

We do not approve of medicinal remedies for suckling calves, but prefer that they should have balls of wheat meal given several times a day in cases of diarrhœa until it ceases. These balls are nourishing, and when combined with linseed meal they

are the best that can be given to maintain the calves in fattening condition when milk runs short or when two are suckled by one cow, which is a good plan when they are young, or for the purchased ones when they first arrive home off a journey. The feeding of the cows is not of so much importance in suckling as for butter or cheese-making. Any kind of roots or green fodder, and even border grass from the banks and borders of fences, may be used, a full allowance of food being of most consequence; and if any feeding stuffs are given, decorticated cotton cake we have found answer best for the purpose. We must not lose sight of one of the great advantages of a suckling dairy compared with others, because it must be admitted that calves are better milkers than the dairyman or dairymaid who milks the cows by hand. The importance of this matter is that the cows in a suckling dairy never suffer from injurious deposits left in the udder, and they continue to give milk longer than when hand-milked; in fact, we have often known them suckle calves until within ten or twelve days of their being due to calve again.

The veal trade is not so likely to be competed with by foreign importations as other butcher's meat, and the importations we now get are always coarse and of low quality compared with the fat and sleek calves made in this country. One of the points in favour of suckling calves is that they require but little attention and give but little trouble in their management as compared with butter and cheese-making, and in most districts the dealers will furnish any number of young calves at short notice, and in some instances we can get them fed on the way before delivery. We find no difficulty in inducing the calves to take balls made up of meal, for after a few times placing them over the tongue the calves will afterwards take them out of the hand, and eventually eat pudding out of a trough made of the approved materials. Oat meal, barley meal, linseed meal, and wheat meal are all excellent for the purpose in admixture, but more particularly wheat meal and linseed meal mixed.

WORK ON THE HOME FARM.

Horse Labour.—This is still of the utmost importance, for not only will the fallows for roots and the ploughing with tillage after green crops require special attention at this time, but also the fallows intended for the autumn sowing of wheat; the latter must be attended to so as to prevent the strong growth of weeds—either annuals, or couch, or water grass. Ploughing under weeds in infancy often goes a long way to not only make the fallow by aërating the land, but by the destruction of the annual weeds, and even the couch and water grasses will waste away and give but little trouble in couching, carting, and burning if the ploughing is done at the right time.

The odd horse or mule will now be required in horse-hoeing the peas, the beans, and potatoes. Some farmers, however, employ a strong working ox or two for the purpose; if two are used of course there must be a lad to lead and drive them. It is only in a few cases that a single ox can be depended on to answer to the rein and turn well on the headlands, as they are seldom kept in work long enough to be sufficiently trained to work with precision like a horse. It is, however, sometimes advisable to retain a tractable and docile ox, not only for the purposes of horse-hoeing work, but also for carting work on the premises as a substitute for the odd horse. In hoeing work between root and pulse crops the ox treads the plants less than a horse, and is quite equal to a mule in that respect; they, however, move slower, and cannot get over so much tillage in a day.

Hand and Machine Labour will now be required in mowing the early crops of grass and saintfoin for hay, and also for the tedding and forwarding the process of making the hay. In hay-making a great deal of foresight and experience is required to say when it is sufficiently dry; in fact there are generally collateral matters to be taken into consideration, such as the size of the stack to be made, and also whether means can be devised to prevent overheating in the stack. We have when rain has threatened taken the hay to stack, feeling assured that it would overheat unless some special method was adopted to prevent it. In such a case we fill a sack tight with straw, and during the building of the stack it is partly drawn up when each load has been added, thus leaving a chimney from the bottom to the top of the stack; this allows any excessive heat to escape. There is another plan sometimes adopted having two objects in view, by placing layers of clean and sweet straw over the rick during the time of making. This plan not only checks undue heating, but at the same time converts the straw into valuable fodder as it becomes impregnated with the aroma of hay, and when cut into chaff together with the hay it makes excellent food for either sheep, horses, or cattle of any kind. In following up the idea it seems to us that upon many large farms where straw is abundant and the sale forbidden, or not situated so as to facilitate the sale of it, that green fodder—such as rye, vetches, trifolium, lucerne, saintfoin, &c.—may with advantage be mixed and stacked with straw in alternate layers, immediately after being mown if perfectly dry. In this way no doubt large quantities of straw may be made into very good fodder for sheep, which under other circumstances they would reject or not eat with avidity and advantage, thus carrying out an idea similar to that introduced by the late Mr. Samuel Jonas of Ickleton, by which he cut into chaff green fodder and straw together, treading it down firm into a solid mass, and retain it for use until the autumn and winter months.

As soon as the crops of grass are cut and the hay cleared off, the land should be carefully examined, and in case the prospect for a second crop is not favourable it should then be decided how to prepare the land if it is intended for sowing with wheat in the autumn. If it is at all light land and adapted for root culture, clean and free from couch grass, it may be immediately ploughed and pressed to keep the turf under, then worked down fine by harrowing, ring-rolling, &c., and drilled with turnips immediately whilst the land is moist, in which case—if either Grey Stone or Red Mammoth turnips are drilled at 20 inches between the rows, with 3 cwt. per acre of bone superphosphate mixed with ashes—a valuable crop may be expected. If the land should be foul with couch or water grass, instead of ploughing we prefer to rafter and scarify the soil with the points, but not with the shares; in this way the land is so loosened that the grass may be combed out very clean by Howard's self-lifting drag harrow, and no amount of ploughing will clean the land so well. The ground may then remain until the dung is laid out and ploughed in and pressed for wheat.

Boys and women should now be employed in weeding the corn and other crops if their labour can be obtained; if not, men must weed the various crops which may have not been completed up to this date, for it must be remembered that in those cases where the hand-weeding is neglected weeds will be sure to seed, and one year's seeding means seven years' weeding. The labour of women and boys is in many districts difficult to obtain. Drilling corn at wide distances will in consequence have to be done, so as to facilitate both horse and hand-hoeing, and thus diminish the cost of hand-weeding.

DORKING CHICKENS.—No. 2.

A DARK Dorking to please us when first hatched should be light brown, shading often almost into yellow underneath, and with three rich amber stripes extending from the head down the back. Some chicks are hatched of this rich brown colour all over; such are generally too dark when fully feathered, and if the colour at first approaches black they end by being quite black. Others are hatched of a mixy grey or light brown colour all over. These are seldom handsome eventually; if hens they are probably the colour of bad Silver-Greys, if cocks they have too much white about them. The colour of down we have given as that which we prefer—viz., with three distinct stripes, as a rule is succeeded by the most approved colours of feather. We have before taken occasion to remark upon the harm which has been done to fine strains of Dorkings by crossing them with some large nearly black breed. To these introductions of foreign blood we attribute the now frequent appearance, so provoking to a fancier who rears but a small number of black or nearly black chickens from apparently excellent stock. We have remarked that very dark pullets are hardly ever eventually of exhibition value, but the cockerels, if they show at twelve weeks old a little light in the neck hackle frequently pass muster after a while; as the hackle grows it breaks their dull black look, and a little colour generally follows on the wing. We hardly advise, however, the retention of such birds for breeding unless they be super-excellent in every point of form. The lighter birds—viz., cocks largely splashed with white in tail and breast, we do not like, and hens of almost Silver-Grey tints we always reject. A novice need not be alarmed at much irregularity in the colour of the first feathers which follow the down, they all have soon again to be moulted out; and even a good deal of white, especially in broad bands across the wings, disappears in a few weeks.

Silver-Grey chickens are invariably hatched with the three brown stripes, but of a much lighter and more reddish brown than the dark variety. A practised eye which knows the strain can generally distinguish the pullets from the cockerels directly they are hatched, as they are a little darker and have the central stripe broader than their brothers. The very light strains, the cocks of which have eventually white hackles, are proportionately lighter when first hatched, their ground colour being almost yellow. Different families of Silver-Greys feather in so utterly different a manner that to give any description of how their beautiful mature plumage gradually appears might only cause disappointment. The sexes are distinguishable by the first breast feathering; the pullets soon show traces of red, though generally mixed with white, the cockerels become greyish. It need not cause apprehension if the latter appear almost white where they must, when adults, be black, neither need a novice be afraid of white in the wings of the first plumage. Birds with it are seldom the strongest, but they entirely moult it out. The cockerels with extremely silvery hackles are often of a rusty brown when half grown. A beginner should be cautious not to discard such. The glistening black and white feathers peer one by one through the rusty hue, but the pullets of such strains generally show some of the latter

in their wings when adult. Cuckoos are hatched of a sooty colour mixed with yellow. We much doubt the purity of any of the well-known strains of this breed; we fancy that they have been much crossed with rose-combed Coloured Dorkings when obtainable, and even with Minorcas for the sake of size. Many crosses will easily produce Cuckoo birds, yet strange to say a well-matched pen of Cuckoos will never, as far as we know, produce them with anything like certainty. The first wing feathers will show if a bird is to be Cuckoo or black, as many of them come. One the first feathers of which are black will never become Cuckoo, and so may be killed at an early age.

White Dorkings, like all white poultry, are hatched of various shades of yellow, and feather at once white, so there is little to watch in their changes. A chick hatched with specks will almost invariably feather with a speck here and there, though often only in the underdown and so not visible. We know a strange instance in which one or two Cuckoo birds are annually produced from a family of White Dorkings which have been kept pure for many generations. We have failed to trace any greater eventual purity in the plumage of those adults which as chickens have been of the palest yellow.

We hope that these few rough hints on the stages through which young Dorkings pass may enable some of our readers to watch their growth of plumage with more interest, and to discriminate more easily and sooner between the good and the bad.—C.

HINTS FOR YOUNG AMATEURS.—No. 7.

POUTERS.—Part 1.

THE young amateur, particularly if he have but a moderately filled purse, may exclaim, "Pouters! Surely one of the three high-class fancy varieties of Pigeons are not for such as I. How can I buy birds that cost ten, fifteen, twenty pounds, or even more? Pouters, Carriers, and Almond Tumblers are beyond my reach surely!" The two last named are, no doubt. A bad Carrier is but a Horseman, and not half as pretty as a Dragoon; and a bad Almond is a dirty, little, fady bird not worth its food. But there is a difference in Pouters. Thus there are colours which, though not show kinds — at least not usually — are yet thorough good Pouters nevertheless, and every bit as interesting as yellow pieds, reds, black or blue pieds; and these to which I allude are always cheap. Their colours are mealy, chequer, splashes, and mismarked birds generally. These as Pouters—I mean as Pouter Pigeons, or Pigeons with an enlarged crop—are as good as any in size, and also these "off colours," as they are called, are often as good in form as their more high-priced and much more highly prized brothers. It is therefore to such as these that the young amateur with a small purse, or one who only cares for Pigeons for the pleasure of keeping them to afford himself amusement or to make his home pretty, must necessarily look. There are also to be had at the end of every breeding season the weeds of the loft. These are birds of good parentage and of the much-esteemed colours blue, black, yellow, and red pieds, and also the new prize bird, the white. From these weeds have by judicious pairing not seldom come birds which have made their mark in the show pen. But it is not of show birds that I write, nor yet for those who exhibit. The objects of these papers are much more humble—to instruct the young fancier, to start him, and guide in some sort his budding taste. Now such a boy, girl, man, or woman—for young fanciers are of all ages—should not be shut out from learning to understand and enjoy one of the most interesting of Pigeons.

Grotesque the Pouter is; he is open to the ridicule of the philosopher who would say, "What is the use of that bag of wind blown out in front? It incommodes the bird, it is no manner of use, it is not even eatable." All very well, Mr. Philosopher, but you are no judge of that poetic ethereal thing fancy which gives so much pleasure. I look into your hard face and say with Keats—

> "Do not all charms fly
> At the mere touch of cold philosophy?"

Now there is a charm in things of fancy, and a pleasure which only fanciers know. The small tradesman with his cage birds knows it and feels it. Life may be and is very dull and monotonous to him, but his bird fancy cheers and comforts him. And the man with a little bit of back yard with not room enough for fowls, but only for a few Pigeons in a cheap wire enclosure, knows it too.

The Pouter, both cock and hen, is an interesting bird. The crop, blown out so as in some eyes to seem a burden, is to him a source of pleasure. He is dearly proud of it. Other Pigeons coo and inflate their crops occasionally, either when nesting or making love, or even when angry; but a healthy Pouter is always at it. Cooing is his delight. To coo, to strut, to clap his wings and fly short distances—say from one box to another, or from the ground to his nest on some broad plank in the sun (there should be plenty of these)—are his great delight. He never flies up without cooing.

A vast chasm of habits and nature separates the Pouter from other Pigeons. They fly away in a fright, he comes towards you and challenges you to coo to him; they avoid notice, fly into a corner; he asks for your notice and attention, and is quite pleased when you give it. Having kept all sorts of Pigeons I scarcely think any other variety know their master, but the Pouter most certainly does. A man with strong bird tastes and who is an invalid could not do better than fit up some warm place projecting from a south wall, a sort of shed with glass windows or doors, and the boxes like Rabbit pens around. Here, even on fine days in winter, he could sit and pet his Pouters, and by constantly petting them and calling "huie, huie"—terms they quite understand—get them very tame, until in fancy language they would "show" to him whenever he came near them; that means, show their pleasure at his approach by bowing, cooing, and blowing out their crops. Of all things he must avoid fighting with them by pushing his finger or stick at them, for they soon learn to peck viciously and become troublesome, and instead of blowing and bowing get vicious and do not show at all. Some will allow you to stroke their backs gently, and then bound from under your hand and show themselves off grandly.

But it is time I should speak of the colours which young amateurs can buy cheaply, for shillings rather than pounds. First are Mealies: these birds are of a reddish colour, particularly on the part of the crop beneath the half moon, and they have red bars across their wings of the colour of this part of the crop; the rest of the bird is of a lighter hue, but reddish still, a kind of red dust on the white feathers. If these birds are not mismarked, which means having foul marks, as a ring of white round their necks or dark feathers on their thighs they are really handsome birds, and their colour soft and pleasing, rendered also distinct by the dark red bars across their wings. Could I have my way I would always have a class for Mealies at all great shows, making the good colouring a great point. Beauty in shape goes wonderfully with a good bred Mealy; few Pouters are so slender or so tall. By received tradition from old Moore's days, Blue Pieds, Black Pieds, Red and Yellow Pieds are the correct things. Granted, but Whites have been raised to the dignity of show birds, so might Mealies, but luckily perhaps for the short-pursed amateur they are not, so he can easily buy them and thoroughly enjoy them. Next I will speak of Chequers and Splashes.—WILTSHIRE RECTOR.

VARIETIES.

THE heavy rains that have recently prevailed and the absence of frost have caused a marvellous growth of the grass crops. Three weeks ago the grass in many fields was not sufficient to hide a partridge, and now in the same fields it is nearly knee deep. This applies to meadows in the south, which promise to yield a good average crop for hay. The early meadows will be ready for cutting in about ten days, by which time, if the prophets are right, haymaking weather will have succeeded the hitherto dull and wet early summer.

—— ONE of the finest breadths of comfrey we have seen this year is in the nurseries of Messrs. Rivers at Sawbridgeworth. It is grown on the skirts of an orchard, in good and rather moist soil, and its luxuriance and productiveness are remarkable. It is cut three times during the year, the produce being readily purchased in the neighbourhood for the feeding of cows and horses. Some animals eat it with avidity "when they get used to it," but others do not take to it so readily. So strongly does it grow that no kind of weeds can exist on the same ground. Mr. J. Watts, Whitfield Farm, Falfield, Gloucestershire, writing to the *Agricultural Gazette*, describes this forage plant as one of the earliest, heaviest, and most useful spring fodders known to agriculturists, and cheapest to cultivate. Lord Moreton intends to extend the growth of it considerably on hill sides, or odd corners, of which on most farms there are plenty, and which seldom grow much besides nettles and docks.

—— THE Show of the Surrey Bee-keepers' Association will be held in Clandon Park on July 17th, and not on the 19th as stated last week. Mr. F. H. Lemaire is the Secretary of the Association, Mr. Whealler being one of the local Secretaries. The Association intend offering a few prizes to be competed for at the Croydon Flower Show, schedules of which will be ready next week.

—— THE RABBIT PLAGUE IN NEW ZEALAND. — Large tracts in Otago and Southland are being brought to a state of barrenness by the action of rabbits alone. Favoured by climate and the bush-covered rocky nature of the country the conies breed with great rapidity, and soon depreciate the value of the land. Great difficulty is experienced in keeping them out of the grass paddocks, and wherever they come they destroy the pine and fruit trees, rendering, as in some districts of Victoria, the country for the time being absolutely barren. In that colony—and it may be cited as an example of what the rabbit can do when it gets the upper hand—it costs 15*s.* per acre to clear the ground of the vermin, in addition to the enormous loss entailed by the destruction of stock and fertility. In one run of 29,000 acres in Southland 26,000 rabbits were killed in four months—a costly operation, since the skins were only worth 1½*d.* a piece, while they cost 3*d.* to obtain. The presence of this immense number of rabbits on the

estate reduced the lambing of the flocks by 20 per cent. On twenty-four holdings in the southern part of the island, during 1876, no less than 1,059,000 rabbits were destroyed. On the same runs there were 153,000 sheep fewer than were shorn previously, and these runs produced 1700 bales of wool less than they did formerly.—(*The Countries of the World* for June.)

—— THE *City Press* states that the cost to the City Corporation of freeing Epping Forest for the use of the people for ever has amounted to close upon £40,000, nearly half of which has been absorbed in legal expenses.

A NEW HIVE.—No. 2.

THE problem which Mr. Paterson set himself to solve was how to adapt the form of the frame to that of the clustering bees, especially when engaged in hatching brood. The first experiment was in the direction of the oval, but the wood persistently refused to be so bent under ordinary management. Steamed, twisted, tied till dry, it invariably returned to the circle or an approach to it. A mould was tried with a larger measure of success, and a very fair approximation to his idea was obtained. The completed frame resembled very much the section of an egg with the end cut off as we see it daily at the breakfast table. But then fresh difficulties arose—the frames would not all come with exactly the same outline : this in a hive would be simply intolerable. Again, the fitting-up of the box internally was, though rendered perfectly practicable by the introduction of the plaster, yet difficult except to an adept, and somewhat expensive. It was at once abandoned, and a new form, which all the time had been suggesting itself as it were, was attempted. Why not adopt the octagonal? The Stewarton hive had rendered it familiar in so far as the shape of the hive itself was concerned. He set to work, and out came the very thing he wanted. It looked exactly as if he had laid down one of his Stewarton boxes on the bench as the cook would do a ham and taken a slice an inch thick off it. He was so pleased with its appearance and the possible advantages which faith and imagination clustered round it, that he at once by means of a block of wood formed a mould which held it fast while the nails were applied, and insured that every frame was firm and all as exactly alike as possible. To carry out his idea a square wooden box was formed; a slight narrow ridge run along the inside or opposite sides to each other, and a tin suspender of the simplest form attached to each side of the frame, and the original idea had fairly taken shape. Some things still remained to be done. From the floor to the side of the box thin partitions of wood were run along from end to end, placed so as to come up to within a quarter of an inch of the one side of the octagon, on either side. This may seem to include the idea of lost space, but the value of this arrangement in another point of view has unexpectedly appeared, and will by-and-by be also explained.

The hive was thus so far completed that the introduction of a swarm to test it was all that was required. Struan, I may mention here, is nearly 600 feet above the level of the sea, and but for the magnificent supply of heath on its hillsides would be the most unlikely and unsuitable place for an apiary in Britain. The winter had been protracted beyond all previous experience. The snow was lying all around, and in the deep corries showed that it would require a July sun to dismiss it. All this presented a bad look out for a transfer. But Mr. Paterson is a man of energy and determination. In the end of April, on the occurrence of a day of sunshine, with the temperature tolerably favourable and the atmosphere perfectly dry, he set to work, broke up one of his hives, and transferred the combs and all the bees (hybrid Ligurians) to the new hive. The frames were placed parallel to the entrance and close to it. He backed them up with one of his newly invented bar-frame feeders, which served at the same time as a dummy. The frames he covered over with flannel and strips of carpeting to an extent necessary to keep up the proper temperature inside, flung a waterproof tarpaulin over all, and felt thankful that the work was thus far accomplished, and hopeful for the future. A less sanguine man would have been haunted by fears innumerable.

Next day the hive was examined. The bees more sanguine than even their master had, as they always do when properly handled, taken their somewhat untimely and unceremonious removal in good part. They were busy, some in fixing the combs to the upper portion of the frames, others in removing the débris necessarily caused by the transference, while another section was busily engaged in removing syrup from the long narrow ridge of the bee-feeder. It was an interesting sight, and Mr. Paterson felt—shall we say?—a little Columbus-like when he first saw a new world.

Day by day the hive has been examined and notes taken. The progress has been remarkable. When it started on its new existence the swarm might in every sense be regarded as the weakest in the apiary—the one that, all things considered, had the worst chance. It is now on a par with the strongest, and it fully and fairly promises by the end of June to be far ahead of the whole. I yesterday paid them a visit. The frames, which are being gradually added one by one, are in no case extended quite to the bottom; but I never saw in any case such a mass of brood, the bees having reserved only from 1 to 2 inches all round for honey, all the rest being appropriated to breeding purposes. On the face of one of the combs I was greatly struck to see that not even a single cell was reserved for honey or pollen inside of the inch space just referred to.

Mr. Paterson is so satisfied with his success, and so confident as to results, that he has begun to adapt his whole apiary to the new system, if we may be allowed so to call it. He has introduced many improvements which were suggested as he went on with his work—adapting his plaster hive to the change of form, working out the idea of a combination hive, overcoming minor difficulties as they emerged. To enumerate or explain these would only lead to confusion if attempted now. I may have occasion to refer to them again, and will let your readers know the practical results of his experiments as the summer passes on.

In my last article the word "prettiest" in the seventh line from the top of page 482 should have been "furthest."—ALROFI.

THE UNFAVOURABLE BEE SEASON.

AT Whitsuntide I passed through several places on the borders of Oxfordshire and Berkshire, and at all of them where I knew bee-keepers I heard very bad accounts of their bees. At Basildon a bee-keeper who had forty-seven stocks last autumn has lost about a third of them. She told me she had a swarm about a month or five weeks ago, but the bees have since died. I turned up the hive and found the bees had not built a particle of comb in it, and I doubt if it was a genuine swarm at all. There has been no other swarm at those places I visited. A bee-keeper at Moulsford has eight hives left, having, he thought, lost four. His hives are above the usual size about there. At Pangbourne one bee-keeper told me he had only seven left out of thirty-seven. Mr. Cross of Whitchurch was not at home, but his man said he thought that he had lost four hives out of thirteen. He employs mostly large straw hives, but he has one bar-frame hive and two of Nutt's collateral hives. My own hives have not yet swarmed.—TOM TOWER, *Essex*.

TRANSFERRING BEES.

THE question of transferring bees immediately or *in futuro* can never be justly answered if the matter of convenience to the operator is allowed to take a prominent place. It is undoubtedly easier to transfer empty, especially broodless combs, than full ones; but skilful manipulation would entail very little loss of grub life, even in transferring to frames a skep ripe for swarming. I purchased not long since four skeps, fair specimens of the orthodox article of our southern villages. Three of the four arrived with combs more or less detached, while one was in utter collapse. I placed it upon a board, untied the cloth carefully, pulled it down to give the bees exit, and in a few minutes lifted it to see the extent of the misfortune. The combs left behind I placed against the outside of the skep, a large cloth was thrown over all, and the bees left for an hour in order that they might learn their locality. In a few minutes they were busy, and in much less time than I have specified pollen was being carried with vigour.

The transfer proceeded thus : The skep was removed 7 or 8 yards; the new hive, with the cloth aforesaid thrown over it, was so placed that its mouth as nearly as possible corresponded in position with the mouth of the skep before removal. A board was fitted to the front, and on to this the bees congregated upon the detached comb were brushed by a painter's large duster, which if properly handled is more convenient, quicker, and more thorough in its work, and less irritating to the bees than the usual goose-wing. These immediately entered; and the combs as fixed being given to them induced them to stay. The little store they had was taken away, the brood containing combs were straightened, two or three spare empty ones given to them, and useless drone cells rejected. By judicious management and a little feeding those bees were made to raise about four times as much brood as would have been possible within the skep; and although they have not swarmed they are crowded, and have eight hundred inches at least of grubs and eggs. A few days since three sections were offered to them, and they seemed disposed to adopt them; but the heavy rains of late have made feeding again desirable. What is true of this colony is true of the others. They have all by the help of foundation been quickly building, and breeding with a vigour almost incredible to those who alone have the handling of little skeps.

The disappointment which may follow delay is shown well in the case of a skep from another source which contained a greater proportion of drone than I have ever before noticed. The coarser cells were at least five times as numerous as those of worker size. There were neither eggs nor brood, while hiding amongst the bees and the few drones was a queen-expectant apparently not many days old. I transferred the bees into a frame hive furnished completely with the combs, and towards dusk removed their queen to a cage in a nucleus form in which I took a reserve Italian. The

bees were now fumigated with puff-ball, partly as an experiment, but also because this plan offered the inducement of saving the worry of caging to the queen; and as there were probably no very young bees present the difficulty of introduction would be unusually great, and her time also would suffer no waste. As soon as they were steeped in forgetfulness, the Italian, which had been left caged on the top of the frames of the nucleus and under the carpet, was removed together with about fifty of her anxious children clustering upon the bars of her prison. All were shaken off between the combs and the hive covered up. The next morning a patch of brood had been already laid. I cannot assert that the intoxicant has not permanently injured the energies of the bees, but careful attention to appearances has given me no proof nor even any suspicion of deterioration. Two cards of brood have been added to keep up the nursing population, and this colony is now highly prosperous.—F. CHESHIRE, *Avenue House, Acton.*

IMPRESSED WAX SHEETS AND HOW TO USE THEM.

I HAVE been very busy during the last week in preparing my hives for the swarms which must now be daily expected. Part of my work has consisted in fitting-in and securing to the bar-frames a quantity of beautiful foundation comb, which I received quite recently from a kind friend in Scotland. Hitherto I have only used guides of this material, that is more or less narrow strips running along the centre of the bar. Owing to clumsy management on my part I have been only partially successful even with these, as I tried to affix the pieces of artificial guide comb by splitting the bar and inserting the strips of comb in the slit so made. The difficulty here was so to flatten the inserted comb as not to weaken it in the process. This too often was the case, hence the weight of the bees when operating upon it caused a frequent breakdown of the comb foundation either in whole or in part. This year my plan is to run some melted wax on both sides of the comb foundation and along the ends, allowing no more than 2 inches in depth to each guide; this only where mere guide comb is used. But I am also giving my bees whole pieces of comb foundation, filling the whole inner space of the bar-frame; and here there is of course much greater likelihood of the comb breaking away, either *en masse* or in part, by bulging out here and there, for when bees begin to work on such comb they do not commence at the top, securing the comb to the bar or frame. They seem to take it for granted that this necessary part of their labour has been done already. So they commence operations by lengthening-out the cells in the centre and at the bottom, at least they do so when the queen is anxious to lay eggs, which I have generally found to be the case when I have slipped in between the breeding combs bar-frames filled with impressed wax sheets. I dare say if honey storing were their object they would enlarge the cells at the top and sides first, but of this I have had no experience as yet. It is obvious, then, that much greater care is required in securing the large pieces I am now making use of. I learned this lesson quite recently, as on examination of a bar-frame so treated, which I slipped into one of my strongest hives about a week ago, I found the sheet of comb very much bulged out in places and curled-up in others, and in one place it had collapsed to a certain extent. I have, therefore, taken extra pains to secure the foundation combs in all the frames which I have since given or intend to give to my bees.

First of all, to afford a firm and solid foothold for the bees at regular intervals in the hive, I never mean to place two of these combs side by side. Every alternate bar-frame is supplied with natural comb, either fixed by the bees themselves or else carefully arranged and secured by myself, aided by thin strips of wood or pieces of tape. By this means the weight of the bees will not press exclusively on the foundation comb. In the next place not only is melted wax run down the edges of the comb, where it touches the wood on both its sides and on the sides of the frame as well as the top and bottom, but I have further nailed strips of wood here and there over against each other, crossing the comb from top to bottom, with occasional projections pressing against the comb and supporting it. These, too, are further secured by running melted wax where the projections touch the comb. If necessary I shall put other pieces from side to side, supporting the comb in the middle, but I think this will hardly be required. Of course all those slips of wood will be ultimately removed when the comb has well established itself.

I give the preceding account of my own experience now with the impressed sheets, and I shall be glad if others of your readers will help us with a report of their trials of them. The bees take to them so kindly and incorporate their own natural works so ingeniously with these artificial aids given to them, that I feel persuaded the gain to the bee-keeper when they come into general and perfected use will be very great. At present in the hands of a novice I should expect considerable failure and disappointment in the use of them.

While I have pen in hand let me revert to the question of our prospects. Up to June 3rd there was despair in my apiary; that day it was miserably cold and wet, thermometer at noon down to 51°. Towards evening the sky cleared and we had a pleasant and sunny close of the day. The 4th was a delicious day, and my bees collected a good deal of honey. The high temperature and doubtless a large increase in the population made them extend themselves into my sectional supers, into which they massed themselves on the 5th in several hives. This was a glorious day—everything for the bee-keeper, and honey must have been collected in large quantities, judging from the sudden way in which cells on the outskirts of all hives were filled. Since then the weather has again deteriorated with the arrival of thunder, and all is gloomy and unpromising as before.—B. & W.

OUR LETTER BOX.

FLOOR OF FOWL HOUSE (*Suburban*).—Do not pave it, but have gravel covered with 3 inches in depth of sand, from which you can rake the dung as needful. The soft flooring is preservative of the fowls' feet.

SECTIONAL SUPERS (*Cookley*).—It is not necessary to remove your crown board to put on a tray of supers, provided that your sectionals are so put over the slits you speak of as to allow a free passage to the bees into each set of sectionals continuously along the slits. You can easily fix over those a piece of excluder zinc if you think it desirable.

BEES UNSETTLED (*M. M.*).—It is not uncommon for a queen to leave a new hive and return to the original, when of course the bees follow her. They will shortly swarm again, perhaps have done so already, and will probably give you no further trouble.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE. 1879. June.	9 A.M. Barometer at 32° and Sea Level.	9 A.M. Hygrometer. Dry.	9 A.M. Hygrometer. Wet.	9 A.M. Direction of Wind.	9 A.M. Temp. of Soil at 1 foot.	IN THE DAY. Shade Temperature. Max.	IN THE DAY. Shade Temperature. Min.	IN THE DAY. Radiation Temperature. In sun.	IN THE DAY. Radiation Temperature. On grass.	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 4	29.876	56.4	51.6	S.W.	51.5	65.6	40.6	122.4	37.1	—
Th. 5	29.885	59.3	53.4	S.E.	51.9	68.2	42.2	115.3	37.6	.262
Fri. 6	29.694	55.5	54.0	S.	53.1	70.3	51.6	118.5	51.1	—
Sat. 7	29.734	59.4	56.7	S.	54.1	66.0	53.0	64.8	50.2	.535
Sun 8	29.609	60.8	55.9	S.	54.2	68.2	52.2	117.1	48.5	.008
Mo. 9	29.772	57.4	54.6	S.S.W.	54.9	64.7	53.8	114.5	50.6	.050
Tu. 10	30.040	59.4	53.5	S.W.	54.7	70.1	50.3	124.1	47.1	—
Means	29.801	58.3	54.2		53.5	67.6	49.1	113.8	46.0	0.855

REMARKS.

4th.—Showery morning, fine afternoon, moonlight night.

5th.—Fine morning, pleasant day, but rain began at 8.30 P.M.

6th.—A little rain early; at 8 A.M. dull, dark, and foggy; but the rest of the day very fine.

7th.—Dull morning, showers at intervals, and heavy rain after 4.45 P.M.; fair at midnight.

8th.—Fine day, with two or three passing showers; fine evening.

9th.—Showers in early part of morning, afterwards very clear and bright.

10th.—Very bright fine summer day, but not at all hot.

Another rather wet week, but much warmer, in fact nearly its average temperature.—G. J. SYMONS.

COVENT GARDEN MARKET.—JUNE 11.

PRICES remain the same, with a better supply of Strawberries, Peaches, Nectarines, and fine samples of Grapes in good demand, all showing signs of the backward season.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples	½ sieve	5	0	to 6	0	Melons	each	10	0	to 15	0
Apricots	box	2	0	3	6	Nectarines	dozen	12	0	24	0
Cherries	box	2	0	3	6	Oranges	℔ 100	4	0	12	0
Chestnuts	bushel	12	0	16	0	Peaches	dozen	12	0	30	0
Currants	½ sieve	0	0	0	0	Pears, kitchen	dozen	0	0	0	0
Black	½ sieve	0	0	0	0	dessert	dozen	0	0	0	0
Figs	dozen	12	0	18	0	Pine Apples	℔ lb	2	0	4	0
Filberts	℔ lb.	0	9	1	0	Plums	½ sieve	0	0	0	0
Cobs	℔ lb	0	9	1	0	Raspberries	℔ lb.	0	0	0	0
Gooseberries	quart	0	6	1	0	Strawberries	℔ lb.	4	0	10	0
Grapes, hothouse	℔ lb	3	0	8	0	Walnuts	bushel	0	0	0	0
Lemons	℔ 100	4	0	8	0	ditto	℔ 100	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes	dozen	2	0	to 4	0	Mushrooms	pottle	1	6	to 2	0
Asparagus	bundle	2	0	6	0	Mustard & Cress	punnet	0	2	0	0
Beans, Kidney	℔ 100	1	0	1	6	Onions	bushel	2	6	4	0
Beet, Red	dozen	1	0	2	0	pickling	quart	0	4	0	0
Broccoli	bundle	0	9	1	6	Parsley	doz. bunches	2	6	0	0
Brussels Sprouts	½ sieve	0	0	0	0	Parsnips	dozen	0	0	0	0
Cabbage	dozen	1	0	2	0	Peas	quart	3	6	6	0
Carrots	bunch	0	4	0	8	Potatoes, new	℔ lb.	0	6	1	0
Capsicums	℔ 100	1	6	2	0	Potatoes	bushel	3	6	4	6
Cauliflowers	dozen	3	0	6	0	Kidney	bushel	4	0	5	0
Celery	bundle	1	6	2	0	Radishes	doz. bunches	0	0	0	0
Coleworts	doz. bunches	2	0	4	0	Rhubarb	bundle	0	9	0	6
Cucumbers	each	0	4	1	0	Salsafy	bundle	0	9	1	6
Endive	dozen	1	0	2	0	Scorzoners	bundle	1	0	0	0
Fennel	bunch	0	3	0	0	Seakale	basket	2	6	3	0
Garlic	℔ lb.	0	6	0	0	Shallots	℔ lb	0	3	0	0
Herbs	bunch	0	2	0	0	Spinach	bushel	2	6	4	0
Leeks	bunch	0	2	0	4	Turnips	bunch	0	4	0	6

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 19—25, 1879.	Average Temperature near London. Day.	Night.	Mean.	Sun Rises. h. m.	Sun Sets. h. m.	Moon Rises. h. m.	Moon Sets. h. m.	Moon's Age Days.	Clock before Sun. m. s.	Day of Year.
19	TH	Kingston, &c., and Weybridge Horticultural Societies'	70.8	48.6	59.7	3 44	8 18	2 a 56	8 27	●	0 59	170
20	F	Last day of York Floral Fête. [Exhibitions.	72.3	50.5	62.4	3 44	8 18	3 54	9 8	1	1 12	171
21	S	Longest day.	74.4	48.8	61.2	3 44	8 18	5 1	9 40	2	1 25	172
22	SUN	2 SUNDAY AFTER TRINITY.	73.6	47.1	59.9	3 45	8 18	6 15	10 4	3	1 38	173
23	M	Royal Geographical Society at 8.30 P.M.	72.7	48.9	61.5	3 45	8 19	7 32	10 24	4	1 51	174
24	TU	Royal Horticultural Society—Fruit and Floral Com-	74.1	49.1	61.1	3 45	8 19	8 50	10 40	5	2 4	175
25	W	Croydon Hort. Exhibition. [mittees at 11 A.M.	73.0	49.2	61.7	3 46	8 19	10 8	10 55	6	2 17	176

From observations taken near London during forty-three years, the average day temperature of the week is 73.0°; and its night temperature 48.9°.

TWELVE HARDY HERBACEOUS PLANTS OF THE MONTH—JUNE.

MANY beautiful plants attract attention during the present month, and amongst them are the following, which should be included in the most limited collections of plants of this nature:—

Hesperis matronalis fl.-pl. (the Double Rocket, or Dame's Violet).—This is an old-world flower, and appears to have been one, amongst others, that once bore the familiar name of the Gillyflower. It was introduced into this country about the end of the sixteenth century, and for long it played an important part in the decoration of English gardens. It is of variable habit, and there are several varieties in cultivation. They are all easily grown, yet are very liable to drop off suddenly through being attacked by a species of Cabbage grubs, which eat their way into the hearts of the young shoots about the collar of the plant. This being so, it is necessary to keep up the supply of plants by striking a few cuttings annually, made of short lengths of the flower stems before they get too old and hard; these inserted in sandy soil, covered with a hand-light, and slightly shaded strike very freely. From the beginning to the middle of July is a favourable time for this operation. The double white is a beautiful variety, and there is also a very dwarf purple sort not so plentiful now as it once was.

Delphinium formosum.—This is still one of the best of the Larkspurs, though many new species and varieties have been added during the last few years. It is too well known to require minute description. The flowers are large, of a bright indigo blue, and are arranged in somewhat short dense racemes. Though of a somewhat straggling habit naturally, it can be used as a massing plant with good effect by keeping the flower stems well pegged down. By cutting over part of the plants in May when they are throwing up their flower shoots, and by being careful to prevent seeding, their season of blooming may be extended until near the end of September. In propagating it the first ripened seed of the season should be sown immediately it is gathered, and the seedlings pricked into a rather dry warm border to stand the winter.

Lychnis chalcedonica fl.-pl.—Plants of stately appearance; both the scarlet and white forms of this are well qualified for a place in the select herbaceous border. The former seems to be the greater favourite, as, though by no means common, it is yet oftener met with than the double white. It grows from 2 to 3½ feet high compact and erect, and bears great Verbena-like heads, 3 or 4 inches across, of glowing scarlet flowers. Succeeds in any good light soil, and is much benefited by removal every two or three years. Increased by careful division in spring.

Gnaphalium arenarium.—This is not given here on account of any great beauty it possesses, but because it is one of the most useful and easily cultivated Everlastings we have. In the making of immortelles and for winter decoration it probably supplies more flowers than all the other Everlastings. It is a low-growing plant of 8 to 12 inches, of half-shrubby habit, and with narrow silky leaves. The bright yellow flowers are produced abundantly in large corymbs, and they should be cut for drying rather before they are fully expanded. On dry warm borders or on rockwork, for which it is well adapted, it grows and spreads like a weed, but heavy damp soil and shade it cannot endure. A native of southern Europe, where it is found in dry sandy places.

Dictamnus Fraxinella.—An interesting and beautiful plant, known as the Fraxinella or Burning Bush. The latter name it derives from the curious fact that in warm weather the flower stems excrete from the numerous little glands by which they are covered a highly inflammable oil or resin, which blazes up brightly when ignited during calm bright weather, and this without injury to the leaves or flowers; owing to this it is said to be an object of reverence to the Parsee fire-worshippers of the East. It is of stout upright habit, and the leaves much resemble those of the Ash, and have a fine balsamic odour when bruised. It flowers in large terminal racemes. There are only two varieties—the white, which is thought to be the normal colour of the species, and the red, which is the best, the flowers being beautifully marked. It is proverbial for the slowness with which plants of it increase or enlarge themselves. One plant of the red variety that I have had for the last fifteen years has not yet got beyond throwing up three flower stems, and in some seasons only two; it is therefore slow work trying to increase the stock by division, but fortunately seed is produced in plenty, which germinates freely if sown as soon as ripe. Year-old purchased seed frequently lies dormant for a season. Native of South Europe.

Thalictrum aquilegifolium.—This is the most handsome of the Meadow Rues, with immense white flower heads and fine foliage. The thrice-pinnated leaves are not unlike those of some of the finer Columbines, but are more divided and spreading, and are slightly glaucous. The flowers at first are of a light purplish colour, but when fully expanded they are creamy white. Easily increased by seed or division. A native of Germany.

Hemerocallis flava (the yellow Day Lily).—Grows from 2 to 2½ feet high a mass of elegant Flag-like leaves. The flowers are orange-yellow, borne in clusters of three or four on flower stems which do not rise much above the foliage. They are very fragrant, and in some instances are produced until late in autumn.

Gaillardia grandiflora.—The perennial Gaillardias do not appear to be well known among amateur growers of hardy plants, otherwise this fine species would be oftener met with. Many have a suspicion that they are not quite hardy, but from all that I have seen in one of the frostiest districts of Scotland this is unfounded. I have just now plants coming into flower on raised rock beds, which beds for three months last winter were simply frozen blocks, hard throughout and to a depth of 18 inches. The plants must, however, have a dry light soil, else they will perish with or without frost. This is one of the most brilliant of the family. It grows about 2 feet high, and has large composite flowers 3 inches across, orange-yellow shading

into bright crimson. Propagated by division or cuttings in spring, or by seed sown in heat. Native of North America.

Aquilegia chrysantha (the Golden-flowered Columbine).—Many of the other Columbines are more showy, but none of them have the airy elegance of leaf and flower which makes this a plant that few can pass without admiring. It grows sometimes over 3 feet high, and bears its flowers in loose open panicles. The long spurs and sepals are clear pale yellow, and the petals are a deeper shade of the same colour. It grows freely in any ordinary good soil, and is propagated by seed sown in July.

Geum coccineum fl.-pl. (the double form of the old-fashioned scarlet Geum).—It makes a dazzling border plant 2 feet high or so, and is apparently more floriferous than the single form, and also continues longer in bloom. The flowers are large, very double, and bright scarlet. Of garden origin, the species being a native of Chili.

Spiræa Filipendula fl.-pl. (Double Dropwort).—A very ornamental and easily-grown plant, which, when not in flower, forms round clumps of dark green Fern-like leaves. It bears dense corymbs of creamy white flowers, or slightly tinged with red when growing in a dry place. Prefers a rather damp soil and partial shade. The single form is a native of Britain.

Lychnis vespertina fl.-pl. (the Double White Campion).—This is another double variety of a common native plant, and one well worth growing in every collection. Its habit is not the most shapely, but it bears pure white flowers of great size which emit a delicate perfume, especially in the evenings. Grows about 2 feet high, and is propagated by division, or preferably by cuttings in July.—R. D. TAYLOR.

RATIONALE OF STOPPING AND DISBUDDING.

THERE seems to me an idea prevalent, and it even finds its way into print now and then, that the plan of stopping a shoot at a certain number of joints before a fruit is for the purpose of throwing additional strength into that fruit; and then in continuation of the same theory it is natural to come to the conclusion that, if stopping at the third joint throws strength into the fruit, stopping at the second joint would do so in a greater degree. Allow me to say that such an idea is generally erroneous. It is true that if a plant is growing as it were all to leaf, and is thinly cropped, we may sometimes by timely stopping the shoots cause fruit to swell which otherwise would not swell at all, but it is a mistake even in this case to suppose that the good results are brought about by transferring the vigour from the foliage to the fruit. It is almost the reverse of this. Before the shoots were stopped the plant was altogether too vigorous; it was like a mighty engine too powerful for its work, or that had too much steam on. Stopping its shoots, and thus temporarily interfering with the natural formation of foliage, would check the whole system to the very root hairs, and thus the plant which was too vigorous or had too much raw material would be reduced to fertility, and the act of sustaining the fruit would afterwards keep its luxuriance within bounds.

What happens in this way to plants also happens to individual branches of plants. One shoot takes the lead of others, it may be from its favourable position, its immunity from attacks of insects, or injury by adverse weather. Such a shoot if not checked will in a short time become a strong branch at the cost of the other branches, but it will not be the most fruitful branch. Weakness rather induces superabundant fertility, grossness has the opposite effect: the weak branch will become still weaker from supporting its fruit, the gross branch will become still grosser because, say, it has nothing else to do. Here, then, is the necessity for checking in some way the over-luxuriance of one part of the plant, and transferring as much of it as is possible into the weaker parts. Among other things stopping the ends of the strong shoots is resorted to, or cutting off the ends of the large leaves, also lowering the strong branch to a more horizontal or even a pendant position, and any other plan which will have the effect of checking the flow of sap into that particular branch without actually injuring its health. On the other hand very weak branches should not be allowed to bear fruit, but should be left to grow unchecked, bearing in mind that fruit-producing weakens; growth of foliage, where the light can act on it, strengthens.

It will be seen from the foregoing that I am no advocate for the cut and dried practice of stopping to the second, third, or fourth joints, but, as a rule, stop vigorous shoots rather closely and keep them stopped, while weak shoots in important places are allowed to grow unchecked, and thus I endeavour to restore the balance which is continually being upset in some parts of a plant. Well, then, it follows that if stopping weakens there are times even when well-balanced healthy plants ought not to be interfered with in this respect more than is absolutely necessary. Peaches should never have a shoot pulled off, or be disbudded as it is called, till the flowers are set. If a few shoots are taking the lead they should merely have their points pinched out. Vines should have their first necessary stopping and tying down done some time before the flowers begin to open. The failure to form the stone in both these fruits, and probably all others, is generally the result of imperfect fertilisation, and imperfect fertilisation may result from unripe wood of the previous year; but supposing ordinary attention not to be at fault, it generally results from a want of proportion between the quantity of flowers and the area of foliage of the current year.—WILLIAM TAYLOR.

ROSE SHOW PROSPECTS.

ARRIVED as we are at the middle of June, "How are your Roses?" is becoming the commonest form of inquiry amongst exhibitors. Their health is quite as much an object of friendly solicitude as that of their owners. I do not know that we have as yet arrived at that amount of devotedness which made the enthusiastic navvy feed his bulldog on beefsteaks and his children on potato peelings; but still Rose-growing prospects are becoming deeply interesting.

There is surely something the matter with the sun. "Even the sun," says the proverb, "has spots on his face." There are either too many or too few. I am not quite clear which diminishes heat, but certainly the Roses are suffering, like all else, from continued sunlessness. Otherwise the result of the compliments of the season, so far as I have presented them, has been to obtain replies that are rather favourable.

"How does your garden grow?" "Well, the Roses are coming on fast if they could but get a little more sun upon them." The May frosts, I apprehend, were rather less severe than usual. The Roses also were considerably less advanced, so that between the two there is reason to hope the first blooms have escaped being frosted, a calamity which sometimes has occasioned the breaking off and throwing away of dozens of my finest opening blooms. The green fly has not been particularly troublesome—but the caterpillars! Go round in the morning; and by noon the leaves are gluing together again. Clear off all at noon, and by night there will be fresh bloom buds bitten into. The only way is to "squalsh" them, as is the somewhat unsavoury word which has of late been emphasised in the House of Commons. Wherever a leaf looks twisted, off with it, and crush between finger and thumb.

It is not a pleasant phase of Rose culture. I generally delegate it to an industrious school child. But the guardians need guarding. At a recent meeting of the National Rose Society's Committee to elaborate those Rose-culture hints with which "D., *Deal*," is about to enrich our Rose lore, an honourable member from Kent was telling us of the way he took to insure things. The nimble-fingered damsel always finished her round amongst the Rose trees with a visit to the head gardener, to whom she had to exhibit her pipkinful of caterpillars. "No cure no pay."

It is now almost certain that this must be a late season. Whether the changes of show days that have been made in some cases are wise, time alone will show. I incline to agree very distinctly with "D., *Deal*." We are too near the time of crossing the river now for swopping horses. Unless we have a tropical outburst again this year, the first show on June 25th will certainly be scanty; but I have good hopes of the 28th. The last week in June and the first in July invariably in these latitudes find Roses in their perfection. One of the largest of the trade exhibitors announced to me his conviction that the 28th would be about right. I fear, however, most of our northern and even midland growers will inevitably be rather thrown back upon Manchester. One peculiarity of this season, which I have never noticed before, is that maiden blooms are more advanced than cutbacks; in general my maiden blooms are too late to be of service.

I may take the opportunity of mentioning here that the Reigate Committee again this year are offering an amateurs' All-England prize, £4, £3, £2, £1, for the first four boxes of twenty-four varieties of any Roses, single trusses. The Show day, July 2nd, is one of the best chosen of the season. The tents will be a short cab drive from the South-Eastern railway

station in the beautiful grounds of A. J. Waterlow, Esq. One word more. About these "Pedigree Seedling Roses" "raised after years of labour," says the notice sent to me, "by Mr. Bennett of Stapleford near Salisbury." Has anybody seen any of them in bloom? Are we to see them this year at the great Rose shows? There are said to be "nine sorts of these ranging in colour from flesh white to deep velvety crimson. The blooms are very large, fine-shaped, and beautifully scented, freely produced all through the season like the most prolific of the Tea varieties." Let us hope they will all attain to first-class certificates.—A. C.

A LAST VISIT TO DANGSTEIN.

My last visit has been a pleasant one, many circumstances tending to make it so, but I could not help feeling sad when I remembered that all the beautiful plants would so soon be distributed. I cannot pretend to give a description worthy of this fine collection, but still a few notes may interest those of your readers who have not had the opportunity of visiting it. Upon applying for permission to be allowed to walk through the houses an intelligent guide was allotted us, and our first halting place was the Palm house. Here we saw stately Palms already grown too tall for the house—Bananas, the delicious fruit of which is grown for the table, the Coffee of commerce, the Arrowroot, and all kinds of economical, botanical, and medicinal specimens too numerous to mention; fine large plants of Ceroxylon andicola, Maximiliana regia, Cycas revoluta, and Corypha australis attracted our notice; and above our heads suspended in baskets were magnificent specimens of Stanhopeas, Acinetas, Miltonias, &c. Placed on one side of the house is a long case, or rather I should say series of cases, the lovely occupants of which claim special admiration—Anæctochili, Peperomias, Fittonias, Nephelaphyllums, &c.; while in close proximity to these aristocratic little pets are gay Crotons, Dracænas, Anthuriums, and beautiful velvety Marantas, sweet-scented Gardenias and Pancratiums, and a host of Begonias.

With regret we left the Palm house, and were next taken to the East Indian Orchid house. There a grand treat awaits the Orchid lover. Large specimen plants of Vanda suavis, V. tricolor, V. tricolor formosa, and V. tricolor superba, also Angræcum eburneum, A. sesquipedale, and other Orchids fill the house. From thence we were conducted through the vineries, every nook and corner being filled with miscellaneous plants. The intermediate house, as it is called, contains Dendrobiums, Cymbidiums, Cattleyas, Cœlogynes, Lælias, and Cypripediums innumerable, while blocks and baskets were hanging in all directions. Then come other houses devoted to fruit, and one to Oranges and Lemons. It is a very pretty sight to see the golden fruit hanging so temptingly amid the green leaves, but it is delightful when thousands of flowers are rendering the air fragrant.

Our next halting place was the stove pits, a long narrow pathway running direct through them; while on a level with the eye are plants of all descriptions, sizes, and colours. There we saw Maidenhair Ferns, crested Ferns, Selaginellas of the most beautiful species, huge Gold and Silver Ferns, a magnificent specimen of the Stagshorn (Platycerium alcicorne), more Crotons, Dracænas, Anthuriums, Begonias, and Caladiums with their shield-like leaves standing out bold and clear in the background. Overhead is trained a Bougainvillea glabra, which about the month of July is one dense mass of flowers overhanging a selection of Ferns. Its opposite neighbour is a Stephanotis floribunda, the wax-like flowers of which emit so sweet a perfume. At the extreme end of this building is a carefully secluded spot, the sliding glass revealing most rare and beautiful specimens of Filmy Ferns. Then we were attracted by the Pitcher-plants, which appear just now (as one of our party said) to be driving a good trade in pitchers, judging by the quantity of little pitchers and big pitchers, with here and there an unlucky fly or insect vainly attempting to find an exit. Finding we took an interest in these carnivorous pets our guide speedily conducted us to another house full of Sarracenias and Droseras, while Darlingtonias appear to be without number. We thought we had seen all the Orchids, but here found some more of the most beautiful varieties. There were Odontoglots, Ada aurantiaca, and Lycaste Skinneri, with Masdevallias, the magnificent colours of which must baffle the most skilful artist, including M. Veitchii, M. Davisii, M. Harryana, M. polysticta, M. tovariense, M. Estradæ, and M. amabilis.

We were next taken to the conservatory, gay with flowers of every hue. A fine lot of Camellias from 6 to 12 feet in height attract attention, their bright crimson, pink, and white blooms showing up grandly with the dark healthy-looking green leaves forming a background; splendid specimens of Gleichenia flabellata, G. speluncæ, G. microphylla, and G. hecistophylla. Then came one of the most beautiful sights at Dangstein—viz., the Filmy Fern house, devoted to that very lovely class of Ferns. It is a most unique collection, and elicits universal admiration.

The visitor, after being dazzled by the bright groups in the conservatory, is suddenly ushered into this grotto-like house, which is most artistically ornamented with coral and shells from the East Indies. Here the eye rests upon the most beautiful shades of green it is possible to conceive, presenting a delightfully cool and refreshing picture on a hot summer's day. On our left as we enter was a long bank of the true Killarney Fern, Trichomanes radicans; the transparent fronds trembling beneath the weight of moisture appear laden with innumerable diamonds. Facing these are splendid specimens of Todea superba, T. Wilkesiana, Trichomanes reniforme trichoideum, Hymenophyllum flexuosum, H. asplenioides, H. dilatatum, H. polyanthos, H. hirsutum, and other species too numerous to mention, but all beautiful. We were next taken into what is termed the Fern house, containing many large specimens, such as Cyathea princeps, C. elegans, C. medullaris, C. petiolata, &c.; Hemetelias, Cibotium Schiedei, which produces a kind of vegetable silk most efficacious in cases of excessive bleeding, Dicksonia antarctica, Angiopteris erecta, species of Alsophila, and several different Marattias, besides countless varieties of smaller Ferns in pots and pans; in fact there were Ferns everywhere. The house is traversed by a serpentine pathway, the rough stone sides of which are clothed and almost hidden from view by Ferns and Mosses. Even the walls and the old stumps of trees placed about are covered: there is not a stick or stone but what Nature has lavished some gift upon—gifts that have been cherished and preserved by both owner and gardener.—E. Robertson.

[The sale of this wonderful collection will be commenced on Tuesday next the 24th inst., and will be continued for the two following days. The second and last part of the collection will be sold on Tuesday July 1st and two following days. The number of lots amounts to 1460.—Eds.]

FRUIT PROSPECTS

In Gloucestershire.—The fruit prospects here are pretty good on the whole. Apples bloomed well, and a quantity of the bloom is set, but there has been rather too much wet, so that I expect some of the Apples will fall off at the time of forming the kernels. Pears and Plums are moderate crops. Strawberries had an abundance of bloom and promise well. My bed of Keens' Seedling, now ten years old, is as good as ever, and certain to have an abundant crop. Raspberries and Currants promise well, but the latter are in some places attacked by the green maggot. Gooseberries are a great failure. I never saw the branches so badly stripped as in the early part of this season. My gardening man attributed it to the birds, but I do not think they were answerable for the whole of the mischief, for on examining the branches in the early part of the season I found several of the buds still on the trees in a dead state, and others that seemed unable to shoot out. The frost I consider did that injury in February when half-melted snow was resting on the branches.—Amateur, *Cirencester*.

In Bedfordshire.—Gooseberries are not more than a third of a crop, as the frost cut them severely, especially the small red ones, of which there are not more than six or eight on a bush. The large Lancashire sorts were not so much affected by the frost. Currants, Red, half a crop; Black a failure. Apples and Pears promise good crops, the blossom having set well. Plums a very good crop, especially Green Gage. Cherries half a crop. Strawberries will be a very good crop, as the bloom is most abundant.—J. W. Kingsley.

Euonymuses for Walls.—Your answer to "A. H." in last week's Journal about Ivy for walls has reminded me of a plant which is very suitable for a low wall, but not often met with in such a position—namely, Euonymus radicans variegatus. The plant is perfectly hardy even in the open ground, and its beautiful glossy silvery leaves have a fine effect associated with the small-leaved Ivies. It requires to be supported

on the wall with nails and shreds, but little of this will suffice, as it leans against the wall as close as any Ivy. For a wall of 2 to 3 feet high it is charming. Other variegated Euonymuses are also suitable for walls, and are very beautiful when so grown.—R. INGLIS.

THE WALTHAM CROSS NURSERIES IN MAY.

MR. WILLIAM PAUL'S nurseries being so conveniently near the railway station I was tempted to break my homeward journey from Sawbridgeworth, and see what was to be seen in the head quarters of an eminent horticulturist, for Waltham is only one of three or four nurseries belonging to Mr. Paul. As at Sawbridgeworth the fruit blossom commanded primary attention, and its beauty was imposingly displayed in the established avenue of Apples and Pears, which is one of the features of the establishment; another feature is the broad grassed avenue between borders of ornamental trees, evergreens, and Conifers; another, the fine collection of Camellias, another the Roses. "The nursery then," some reader may naturally observe, "is all features." Well, the leading points mentioned are so prominent, and Mr. Paul has such a habit of doing what he undertakes so thoroughly, that I am fully justified in applying the term to the departments indicated.

The fruit avenue referred to promised to be in a satisfactory degree productive. The blossom was certainly sufficiently plentiful; but possibly the frequent rains and almost continually moist atmosphere that prevailed during the blossoming period may have impaired the setting of the fruit. The trees are well-formed pyramids and bushes, and have been planted many years. They are the trees which yield the great collections of fruit that are occasionally exhibited by Mr. Paul, and which number often 150 to 200 separate dishes and varieties. But the production of fruit is not the most important purpose that the trees serve, nor are they established to show skill in pruning and training. They are the stock trees for affording grafts for providing the large number of young trees required in the routine of the establishment. When, as is the case there, the correct nomenclature of every tree is verified, and all the grafts required are taken from this standard collection, the possibility of mistakes occurring is reduced to a minimum; and if by accident a wrong name should be attached to a variety, it is obvious that the error is not multiplied when the safe system is employed of only obtaining grafts from the stock trees referred to. Mr. Paul is also forming a standard collection of Gooseberries, the most approved exhibition varieties being on trial; the qualities of each variety will be carefully tabulated, and the very best sorts will be retained to form the permanent collection.

The ornamental trees can only be briefly alluded to. The pictorial deciduous trees were only just commencing growth, so that it were premature to remark on their decorative merits which necessarily require time for development. The evergreens and Conifers must also be passed with the remark that all the leading kinds are included in the collection and grown sufficiently thin to render them as hardy and well furnished as possible. Some Yews raised many years ago by Mr. Paul are very noticeable; they appear to represent a true cross between the English and Irish Yews. There are two varieties very distinct, the one partaking of the nature and habit of the English, the other of the Irish parent. As lawn and shrubbery ornaments they are both elegant and handsome.

A word on the third feature of the nursery—the Camellias. The most extensive and complete exhibitions of cut blooms of Camellias that have ever been exhibited have been produced in these nurseries. The excellence and beauty of the displays referred to will be understood when it is stated that the King of the Belgians, who may be said to be the monarch of a Camellia-growing kingdom and a competent judge, spoke in the highest terms of approval of Mr. Paul's Camellias when he visited one of the Royal Horticultural Society's exhibitions during the present year. Of His Majesty's admiration I was a witness, and of his words I was an auditor, and I ought to have given Mr. Paul his just due before now (but better late than never) of the royal recognition that his exhibit received. The plants were not in bloom in May, but were to the eye of the cultivator equally attractive, for they were making their growth. Anything more thoroughly healthy, more free, and more fine could not be imagined than the large housefuls of fine plants; and at least one important factor contributing to their remarkable condition was moisture. The house was like a puddle—plants, floors, sashes, everything wet. "That's the way we make Camellias grow," observed their able cultivator, "and when we want them to set their buds we just keep the place dry." Very simple practice, but very certain in producing good results as proved by long experience. Waltham Cross is a Camellia manufactory. At one end of a house stocks are grown for producing cuttings; pits are provided for striking them, low houses for grafting, and huge lofty structures for growing and flowering the specimens in. There are two or three large houses and several pits devoted to Camellias, and the plants range from about 6 inches to 16 feet in height.

We now pass to the fourth and last feature of the nurseries—Roses. The last time I visited Waltham Cross was towards the end of the Rose-planting season. Orders were then almost dreaded, for the stock was exhausted. It is now the Rose-manufacturing season—the selling season too, for on the day of my visit an order was being completed of which I hardly dare state the particulars, but a sufficient idea of its magnitude may be gathered from the fact that five men had been wholly occupied for two days in its execution. It was composed of young plants of the newer varieties in pots. It is perfectly astonishing to see the number of Roses that are being worked this spring. Grafting commenced in January in several ranges of low, light, well heated and ventilated houses. These structures have already been filled and emptied three times, the plants being shifted into larger pots and houses. Many of the plants were blooming freely, and not a few had then produced stout short-jointed growths upwards of 3 feet long, a few of the strongest growers being quite 4 feet high; others were smaller and younger, but all alike healthy and clean. The stock chiefly employed is the De la Grifferae. When first grafted the stocks are in 3-inch pots; after they have "taken" the plants are shifted into 4-inch, and when established they have another move into 5-inch pots, additional air being afforded them as the growth advances. There is no undue forcing, no drawing, but the growth is as satisfactory as can be wished for. They are potted very firmly—hard, and this accounts in a great degree for the solidified appearance of the plants. The soil appears to consist of the ordinary loam of the nursery and a little decomposed manure; but whether Mr. Paul mixes any of his special Rose fertiliser with it or not, or whether the stock used plays such an important part in the free growth of the plants I am unable to say, but this I know, that they were in splendid condition; the owner simply remarked he was "quite satisfied with them," and that is enough. Besides their free growth there did not appear to be an insect on them, nor a speck of mildew in any of the houses. Amongst the varieties that were blooming the following merit notice:—

Madame Lambard.—A new Tea Rose, figured in Mr. Paul's "Rose Annual." In the plate the yellow is rather too pronounced, except the colour deepens when the blooms expand in the open air; but an important quality possessed by this Rose is not sufficiently represented in the figure—namely, the bold upright character of the flower trusses. Every bloom that I saw was as erect as those of Jules Margottin, or any other free and strong-blooming Hybrid Perpetual. This is a distinct Tea Rose of great promise.

Jules Chrêtien, H.P.—A grand grower, with noble foliage and richly coloured blooms. It resembles Reynolds Hole more than any other Rose that occurs to me. It was not possible to judge of the character of the blooms, but if they prove large and of good form the Rose will be an acquisition.

Madame Eugène Chambeyran, H.P.—Colour bright fresh pink, particularly lively, deepening in the centre; recurved outer petals. Very free grower and bloomer.

Emilie Plantier.—Apparently the result of a cross between Madame Plantier and Boule de Neige; blush white, small, but attractive. Will probably prove a useful decorative Rose both for the conservatory and garden.

François Gaulain, H.P.—Blooms small, but petals of extraordinary substance. Colour very deep claret; free and distinct.

Souvenir de Madame Robert, H.P.—Blooms very globular, with full close petals. Colour bright pale rose. It is of the Thérèse Levet type, and perhaps not sufficiently distinct from that Rose.

Many other better known Roses were flowering, and plants of those two beautiful new Roses Countess of Rosebery and Duchess of Bedford were remarkable for their free and vigorous growth. Mr. Paul, like the Rev. F. Tymons, entertains a good opinion of Mabel Morrison; but as exhibited in London the blooms have lacked size and fulness, yet, notwithstanding,

were beautiful as set off with grand foliage. If this Rose developes into the size, or nearly so, of Baronne de Rothschild, from which it is probably a sport, it will find its way into every garden. Madame Etienne Levet, a Hybrid Tea of the same character as Cheshunt Hybrid, is a Rose of considerable promise. It has been flowering at Waltham Cross and also with great freedom at Sawbridgeworth, where it is considered likely to prove of great usefulness. It is brighter in colour than Cheshunt Hybrid, and appears, so far as can be judged from small plants, to grow and flower with equal freedom.

In Mr. Paul's old Rose house, one of the first erections of the kind, Solfaterre, Louise de Savoie, and La Boule d'Or planted out were flowering profusely, the plants bearing two to three hundred blooms each; and the charming Banksian Roses had been densely covered with large trusses. The plants in pots in the large Rose house were just finishing their early career, having yielded thousands of blooms, many of which have merited and received recognition at the spring and early summer exhibitions.

Mr. Paul's attainments as a horticulturist and his readiness to impart information enables the visitor to derive profit as well as pleasure from an inspection of his nurseries.—J. W.

ROYAL BOTANIC SOCIETY.

SECOND SUMMER EXHIBITION, JUNE 18TH.

NOTWITHSTANDING the almost entire absence of the queen of flowers the Show was an extremely beautiful one, and Orchids were exhibited in great numbers and superb condition. Foliage plants, Ferns, stove and greenhouse plants, were also numerous; but the central groups exhibited by Messrs. Veitch, Williams, Bull, and Henderson were the great attraction of the tent. The whole arrangement was tasteful and harmonious, and was greatly appreciated by the numerous visitors during the afternoon. The Exhibition was honoured by H.R.H. the Duchess of Teck and many other distinguished visitors.

ORCHIDS.—In the nurserymen's class for twelve exotic Orchids Mr. B. S. Williams exhibited a fine collection, and was awarded the first prize. Orchis foliosa had over two dozen spikes, Cypripedium Swanianum was very fine with nearly thirty flowers, and Lælia purpurata was extremely beautiful with fifteen large and richly coloured flowers. Mr. James, Castle Nursery, Norwood, was second with a pretty group including a fine specimen of Cypripedium barbatum with over forty blooms, and Acineta Humboldti with dull yellow flowers spotted with dark red. In the amateurs' corresponding class Mr. J. C. Spyers, Orchid grower to Sir Trevor Lawrence, Bart., M.P., exhibited a magnificent collection. Among them we observed a fine specimen of Odontoglossum vexillarium bearing over one hundred blooms. Cypripedium caudatum was very beautiful with sixteen enormous flowers. The fine Bollæa cœlestis had eighteen of its bright purple flowers. Cattleya gigas had three enormous flowers with brightly coloured labellums. Sobralia macrantha nana was in splendid condition, also Calanthe veratrifolia, Masdevallia Harryana violacea, and Cypripedium niveum. Mr. Spyers easily secured the first prize. Mr. Denning, gardener to Lord Londesborough, was placed second with a fine collection, of which the best were Lælia purpurata with sixteen large flowers; Dendrobium suavissimum with sixteen fine spikes; Lælia lobata with over three dozen blooms; Anguloa Clowesii was also grand. The third prize was secured by Mr. Heims, gardener to A. Philbrick, Esq., Avenue Road, who exhibited good plants, including Sobralia macrantha and Cypripedium Stonei very good. An extra prize was awarded to Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, for fine specimens. In the amateurs' class for six Orchids there were four entries. Mr. Douglas was first with a good collection, in which Cypripedium caudatum roseum and Epidendrum vitellinum were conspicuous. Mr. Denning sent a very good six, including Dendrobium suavissimum and Cattleya lobata in fine form; the second prize was awarded. Mr. Heims was third with a fair collection. Mr. Williams exhibited the only nurserymen's six, and was awarded the first prize. Lælia purpurata, Cypripedium barbatum superbum, and Orchis foliosa were very good.

STOVE AND GREENHOUSE PLANTS.—In the open class for twelve stove and greenhouse plants Messrs. Jackson & Sons, Kingston, were first with a collection of even and well-trained specimens, Azalea Magnet being extremely fine. Mr. Donald, gardener to J. G. Barclay, Esq., Knotts Green, Leyton, was second with a fine group. Messrs. B. Peed & Sons, Lower Norwood, were third with a very fair collection. In the nurserymen's class for six plants Messrs. Jackson were first with good and healthy specimens, including Erica depressa, very fine. Messrs. Peed were third. In the amateurs' corresponding class Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, was first with very neat and bright specimens. Mr. J. H. Hinnell, gardener to F. A. Davis, Esq., Anglesea House, Surbiton, was second with well-trained specimens. Mr. Bones, Havering Park, Romford, was third; Mr. Donald and Mr. Wright, gardener to E. Brightwell, Esq., Great Stanmore, being awarded extra prizes.

In the nurserymen's class for twelve Cape Heaths Messrs. Jackson & Sons staged a collection of even and healthy plants, Erica ventricosa superba and E. ventricosa grandiflora being remarkably well flowered. Messrs. B. Peed & Sons were second with fair plants. In the amateurs' class for six plants Mr. Donald was first with an extremely good collection, Erica eximia superba being very fine. Mr. Child was second, and Mr. Weston, gardener to D. Martineau, Esq., Clapham Park, third.

PELARGONIUMS.—In the amateurs' class for six plants Mr. D. Donald was first with even and well flowered specimens; Ellen Beck, Fanny Gair, and Mrs. A. Wiggins being extremely good. Mr. Jas. Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, was second with smaller plants. In the nurserymen's class for nine plants Mr. Charles Turner, Slough, was awarded the first prize for a very fine collection, in which Prince Leopold, Troubadour, Red Gauntlet, and Mrs. Hart were remarkable for the large size of their blooms and bright colours. In the open class for six Zonal Pelargoniums Mr. John Catlin, gardener to Mrs. Lermitte, sen., Finchley, was placed first with specimens 3 and 4 feet in diameter. Titania, Mrs. Turner, and Mrs. Catlin were very beautiful. Mr. Charles Weston was third; and Mr. James Weir was awarded an extra prize.

In the amateurs' class for six large specimen Ferns there were four entries. Mr. J. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, was justly awarded the first prize for large and healthy specimens, Dicksonia antarctica being especially remarkable, and Adiantum farleyense was over 4 feet in diameter. Mr. James Child was a good second, Todea superba and Gleichenia Mendeli being very handsome. Mr. Rann and Mr. Donald were equal third. In the corresponding class for nurserymen Mr. B. S. Williams was first with a superb collection of well-grown specimens, and Messrs. E. G. Henderson, Pine Apple Nursery, were placed second with smaller specimens.

In the amateurs' class for six fine-foliage plants Mr. Hudson was first with magnificent specimens. Alocasia Lowii was remarkable; Croton variegatum and Cycas circinalis were also unusually fine. Mr. Rann, gardener to J. Warren, Esq., Handcross Park, was second with a good collection, including Croton interruptum and C. Weismanni in splendid condition. Mr. Donald was third; and Mr. Ford, gardener to J. E. Meegaw, Esq., Windermere House, was awarded an extra prize. In the nurserymen's corresponding class Mr. B. S. Williams was awarded the first prize for very good specimens, Cordyline indivisa and Dasylirion acrotrichum being very good, also Pandanus Veitchii. Messrs. Hooper & Co., Covent Garden, were second with a pretty group, and Messrs. Henderson and Son were third with very fair specimens.

In the amateurs' class for six tuberous-rooted Begonias Mr. James Long, gardener to C. J. Law, Esq., Southgate, was placed first with handsome specimens. Mr. Child was second with well-flowered plants. Mr. Ford and Mr. Wright were equal thirds with small plants. In the nurserymen's corresponding class Messrs. Laing & Co., Forest Hill, secured the first prize with large and profusely flowered plants—Duchess of Edinburgh had enormous blooms, Madame Oscar Lamarche and Massange de Louvriex being very bright; Marquis of Salisbury was also attractive with its distinct crimson blooms.

In the class for twelve cut blooms of white Roses, one variety, Mr. J. Bolton, gardener to W. Spottiswoode, Esq., Coombe Bank, Sevenoaks, was awarded the first prize for small flowers of Lamarque. In the class for twelve yellow Roses the same exhibitor secured the first prize. In the class for twelve red blooms Mr. Soder, gardener to O. Hanbury, Esq., Brentwood, was placed first with Achille Gonod. Mr. Hollingworth, Maidstone, was awarded the first prize in the class for twenty-four varieties of cut blooms; they were rather poor, the best being Madame Willermoz, Cheshunt Hybrid, La Belle Lyonnaise, and Maréchal Niel. For twenty-four trusses of twelve distinct varieties, cut blooms, of stove and greenhouse plants, Mr. Morse, nurseryman, Epsom, secured the first prize for a very fresh collection. Mr. J. Bolton was second with good blooms. Two collections were disqualified for including more than twelve varieties. In the class for twenty-four trusses of hardy herbaceous plants in twelve varieties Mr. Morse was first with a very neat and good collection. Mr. Douglas was second.

Extra prizes were awarded to Messrs. Veitch & Sons, Chelsea, for an extensive and charming group of Orchids, stove, flowering, and foliage plants in great variety, backed up with the dark-leaved Acer dissectum and Anthurium Warocqueanum, A. Veitchii, and Alocasia Thibautianum. In the centre was a grand specimen of Anthurium Schertzerianum, and the group was edged with Odontoglossum vexillarium and varieties of Gloxinias. The brilliant Begonia Mrs. Arthur Potts was very showy, and highly attractive were the slender Dendrochilum filiforme, Brassia verrucosa, Odontoglossum nævium, Dendrobium Bensoniæ, and Blandfordia aurea. To Mr. William Bull for a handsome and tastefully arranged group of new and rare plants. Orchids were abundant, also Sarracenias and foliage plants. The group was

edged with Adiantum gracillimum, and backed up with Palms and Cycads. Three plants of Hæmanthus Kalbreyeri were very attractive, one being placed in the centre and one at each end. The beautiful white and profusely flowering Spiræa aduncus astilboides was exhibited in fine condition. Cypripedium Dayanum and Epidendrum vitellinum majus were very fine. To Mr. B. S. Williams for a group of stove and greenhouse foliage and flowering plants and Orchids; small plants of Croton Queen Victoria were very brightly coloured, as were also C. Disraeli, C. Prince of Wales, and C. Crown Prince. Anthurium Schertzerianum was good, and Dracænas were well coloured and vigorous. Cypripedium nævium was pretty. To Messrs. Henderson for a miscellaneous group of very fine plants in excellent condition and well arranged. To Messrs. Cutbush for a group of New Holland plants. To Messrs. Laing for a group of Begonias, Crotons, and Caladiums. To Messrs. James Ivery & Son of Dorking for a collection of British Ferns. To Messrs. Osborn, Fulham, for a group of foliage plants and a group of hardy plants. To Mr. Wheeler, gardener to Louisa Lady Goldsmid, Regent's Park, for a miscellaneous group of plants. To Mr. Hooper of Bath for a collection of Pyrethrum and Pansy flowers. To Messrs. Hooper & Co., Covent Garden, for a group of Irises and Ixias. To Messrs. Henderson for a collection of Calceolarias; and to Mr. Douglas for a beautiful group of Aquilegias.

CERTIFICATES were awarded to the following exhibitors:—To Mr. Bull for Lilium purpureum, Encephalartos Frederici Guelielmi, Croton roseo-pictus, Sarracenia flava picta, Blandfordia flava, Bolbophyllum Beccarii, Carludovica Drudei, Dieffenbachia Leopoldi, and Nepenthes Vecillardi. To Messrs. Veitch for Croton Bragæana and Torenia Bailloni. To Messrs. B. S. Williams for Bertolonia Rodeckii, B. Killickii, Lycopodium species, and Encephalartos Williamsi. To Messrs. Henderson for Sonerila Hendersoni amœna. To Mr. Boller for Echinocactus capricornus. To Messrs. Van Houtte for Bertolonia Killickii and B. Rodeckii.

FRUIT.

The show of fruit was only a moderate one, not nearly equal to the display of last year that was held in July. In the class for a collection of six distinct kinds there were four entries, The first prize was awarded to Mr. W. Crump, gardener to the Duke of Marlborough, Blenheim, Woodstock, who staged fair examples of Black Hamburgh and White Frontignan Grapes, colour only being a little deficient in each instance, a good smooth Cayenne Pine, splendid Royal George Peaches, Victory of Bath Melon, and Sir J. Paxton Strawberries. Mr. J. Fry, gardener to L. J. Baker, Esq., Haydon Hall, Pinner, was a good second; his collection included an excellent Queen Pine, good Brown Turkey Figs, Melon, &c. The third prize went to Mr. W. Robbins, gardener to E. Dyke Lee, Esq., Hartwell House, Aylesbury. His best dishes were Foster's Seedling Grapes, Victory of Bath Melon, President Strawberry, and Early Louise Peaches. An extra prize was awarded to Mr. Bones, gardener to D. McIntosh, Esq., Havering Park, Romford.

In the class for one Queen Pine Apple two fruits only were staged. The first prize was awarded to Mr. J. Fry for a good fruit, and the second to Mr. J. Douglas for a rather small specimen. In the class for one Pine Apple of any other variety Mr. A. Aitkin, gardener, The Grove, Highgate, was the only exhibitor, and was awarded the second prize for a fair-sized fruit of Charlotte Rothschild. In the class for two Melons, one Scarlet and one Green-fleshed, there were only two exhibitors. Mr. Crump was placed first with Hero of Bath and Heckfield Hybrid, and Mr. J. Bolton second with Victory of Bath and Scarlet Gem.

Three baskets of 12 lbs. of black Grapes, any variety, were shown. Mr. Crump was first with a fine basket of Black Hamburgh, Mr. P. Edwards second with fruit but little inferior, and Mr. Robbins third. In the corresponding class for white Grapes there were four baskets shown, the first prize being awarded to Mr. Douglas for a fine basket of Canon Hall Muscat, the second to Mr. J. Fry for a good basket of Foster's Seedling, and the third to Mr. Crump. In the class for three bunches of Black Hamburgh there were six competitors, Mr. Woodbridge, gardener to the Duke of Northumberland, Syon House, securing the first prize with fine bunches and berries, but not quite perfect in colour; Mr. Crump was second; and Mr. W. Hills, gardener to Mrs. J. S. Wells, Frettleworth, Sussex, third, both staging good-sized but unfinished bunches. There were three competitors in the class for any black variety, the first prize going to Mr. J. Bolton, gardener to W. Spottiswoode, Esq., Coombe Bank, Sevenoaks, for good examples of Black Prince; the second to Mr. G. Holliday, gardener to Jas. Norris, Esq., Castle Hill, Bletchingley, for small bunches of the same variety; and the third to Mr. W. Hills for Muscat Hamburgh. The class for Muscat of Alexandria was, considering the sunless spring, a very fair one; six exhibitors competed, the first prize going to Mr. Woodbridge for three fairly well-finished bunches. Mr. P. Feist, gardener, Bishopsgate House, was a good second; and Mr. H. Blundell, gardener to T. Holman, Esq., Gate House, East Hothly, third with well-coloured bunches. Four lots were staged in the class for any other white kind. Mr. Douglas secured the first prize with small, but in other respects good, examples of Canon Hall Muscat Mr J. Bolton was second with excellent examples of Buckland Sweetwater; and Mr. Crump third.

There were four competitors in the class for two dishes of Peaches, and three in a similar class for Nectarines. In the former Mr. W. Gardiner, gardener to G. P. Shirley, Esq., Ettington Park, Stratford-on-Avon, was first with very fine well-coloured dishes of Early Admirable and Grosse Mignonne; the second going to Mr. G. Goldsmith for well-grown unnamed examples; and the third to Mr. W. Robbins, gardener to E. Dyke Lee, Esq., Aylesbury, for fair dishes of Noblesse and Grosse Mignonne. For Nectarines Mr. Holliday, gardener to J. Norris, Esq., Castle Hill, Bletchingley, was placed first with excellent examples of Lord Napier and Violette Hâtive; Mr. G. Goldsmith being second with good but scarcely ripe and unnamed fruit; and Mr. Robbins third with small fruit also unnamed. Mr. Douglas was the only exhibitor of two dishes of Strawberries, and received the first prize for excellent examples of James Veitch and President. There was no competition in the class for two varieties of Figs. In the miscellaneous class a fine basket of Trophy Tomatoes, shown by Mr. W. Iggulden, Orsett Hall, Romford, was awarded an extra prize.

NOTES AND GLEANINGS.

WE remind our readers that the thirty-sixth anniversary festival of the GARDENERS' ROYAL BENEVOLENT INSTITUTION will take place at "The Albion," Aldersgate Street, on Wednesday, July 2nd, when Mr. Serjeant Cox will preside. Mr. J. J. Thomas of the Paddington Wireworks has issued an appeal, as Steward, for donations and subscriptions to this excellent Institution.

—— WE are informed that the display of ROSES, which is to be made by Messrs. W. Paul & Son of Waltham Cross, at South Kensington on the 8th of July, will be one of the most extensive that has ever been shown by one exhibitor in this country. The great tent, 200 feet long, will be "a garden of Roses," consisting of 12,000 trusses.

—— WE are requested to again remind the members of the PELARGONIUM SOCIETY, that although the Society's Show has been postponed from the 24th June to the 8th July in consequence of the lateness of the season, it has been arranged that the Censors and Executive Committee should meet on the former as well as the latter day for the purpose of awarding the Society's certificates of merit to deserving novelties in all the classes of the Pelargonium, so as to ensure their being adjudicated upon in their best condition.

—— WE have received a communication from MR. WILLS, in which he complains that a "more representative deputation from the large meeting that took place in the Albert Hall was not received by the International Show Committee at their meeting at Kensington last week. Mr. Wills also asks, "why this Committee does not dissolve and give place to a committee of progress?" The success of the recent exhibition at Manchester is then adduced as affording evidence that an international exhibition in London in 1880 would also be successful.

—— A MEETING of the General Committee of the NATIONAL ROSE SOCIETY was held at the Horticultural Club on the 11th inst., when certain brief hints on the culture of Roses were agreed on and ordered to be printed. They are to be circulated amongst the members and the different Rose Societies which have affiliated themselves with the National Society. The arrangements for the Crystal Palace Exhibition were also made.

—— MR. W. W. E. WYNNE informs us that LEUCOJUM ÆSTIVUM grows wild on his estate at Peniarth, Merionethshire, where it is found in considerable quantities on the margin of the river.

—— A SWANSEA correspondent informs us that ROSES have stood the severe winter "most wonderfully" in that neighbourhood. One garden contains about three hundred Hybrid Perpetuals; not one is dead, and only one Tea of about fifty, and yet several large Fir trees were killed by the frost. In several gardens the Sweet Bay looks quite dead, while the Arbutus is flourishing.

—— WE have received several communications relative to the priority of leafing of the OAK and ASH. The dates of leafing of the two trees are contradictory, as must necessarily be the case when there are several varieties of both kinds of tree, some of which are naturally late and others early in commencing growth; and hence the differences in date that observers have noticed, and which consequently can be of no value if published.

—— MR. CARR, late of Taversham Hall, Norwich, has been appointed to take full charge of the extensive gardens of the

Duke of Portland, Welbeck, Worksop; Mr. BARKER, late foreman to Mr. Coleman of Eastnor Castle, has been appointed as head gardener to Hy. Allsopp, Esq., Hindlip Hill, Worcester; and Mr. LYON is appointed as head gardener to E. H. Scott, Esq., Sundridge Park, Bromley, Kent.

—— A CORRESPONDENT informs us that a market gardener living about eight miles N.E. of Liverpool has at the present time a MARÉCHAL NIEL ROSE in full bloom, and is cutting and sending to Liverpool market weekly an average of three hundred blooms: the largest number cut in one week has been 324 Roses. The tree is grown in a moderately sized greenhouse; the roots are planted outside, and the growth is trained inside to wires near the glass like Vines.

—— THERE are now flowering in the ORCHID HOUSE AT PENLLERGARE, SWANSEA, the seat of J. D. Llewelyn, Esq., four plants of Aërides odoratum purpurascens with 105 spikes of flowers on them; on the largest plant there are sixty-five spikes. Peristeria elata has eleven spikes and 110 flowers on them; and Vanda teres has nineteen spikes with four and five flowers on a spike. Such examples of successful culture are highly noteworthy, and reflect much credit on Mr. C. Warmington the able gardener.

—— WE can now, observes Mr. Bardney, see the destructive effects of the SEVERE WEATHER of last winter. The large specimens of Escallonia macrantha and E. sanguinea that endured the severe winters of 1874 and 1875 at Newton Hall, Stocksfield-on-Tyne, when the thermometer on three occasions registered 3° below zero, have all been killed; and the double Furze that abounds in quantity, and which is a feature of interest at Newton when in bloom, has this year suffered very severely.

—— IN the Begonia house at Kew STREPTOCARPUS SAUNDERSII, a Gesneraceous plant introduced in 1860 from Natal, is now flowering. The solitary leaf is very large and lies flat on the surface of the soil; the branching inflorescence rises to a height of 18 inches to 2 feet. The flowers have gaping monopetalous white corollas tinted with pale blue in the throat. It requires a rich well decayed sandy leaf soil, and shallow pots with good drainage.

—— IN consequence of the backwardness of the season the Directors of the West of Scotland Rosarians' Society have resolved to POSTPONE THE HELENSBURGH ROSE SHOW from July 18th to Saturday, July 26th. Intending competitors must send the form of entry and declaration to the Secretary, with relative deposit, not later than Monday, July 21st; and exhibits must be staged either on the evening of the 25th or before 9 A.M. on the morning of the Show.

—— CORONILLA GLAUCA has, Mr. J. Muir informs us, quite succumbed to the severe weather of last winter in the open air at Margam; but the pretty sweet-scented and more useful greenhouse plant, CYTISUS RACHMOSUS, growing quite in the open not far from the Coronilla has not been injured in the least, as it is now as healthy and vigorous in appearance as plants under glass.

—— THE following ORCHIDS are now flowering at Birdhill House, Clonmel. Odontoglossum Alexandræ, with bright golden spots on a white ground, one small plant having twenty blooms each exceeding 3 inches in diameter. O. citrosmum and O. citrosmum roseum, small plants flowering freely; larger plants have had thirty flowers on a spike. O. Uro-Skinneri has three fine flower stems, one bearing thirty blooms of that peculiar shining brownish-green colour which renders this species so distinct. Sobralia macrantha splendens is very fine, some flowers exceeding 6 inches in diameter, the colours being curiously blended. Amaryllis marginata is also in fine condition. The plants are in 10-inch pots, and none with less than five stems, on each of which there are several flowers of great substance and of the most brilliant colours. Valuable for decorative purposes. The condition of the plants generally affords evidence that Mr. Lonergan, Mr. Gough's gardener, is a skilful cultivator.

ROSE SHOWS AND HOSPITALS.

I HAVE been wondering whether Rose exhibitors are selfish or only thoughtless. I do hope it is the latter; but last year before the shows I asked for the names of those who would be willing to give their spare blooms for one of the flower missions or hospitals, and only Mr. Cheales volunteered; and again that gentleman himself wrote upon this subject in the Journal a few weeks ago, but no one has since sent a line saying he is willing to give his flowers.

I had the pleasure of receiving Mr. Cheales' blooms last year for the Mildmay Mission, and took them next morning to the Children's Hospital. If the exhibitors at the National could have been present, and have heard the long-drawn-out "Oh-h" as the bunches appeared inside the wards, and have seen the sparkle of the eye and the flush upon the cheek as each little sufferer received a bloom, I verily believe the pleasure of seeing "first prize" on the stand the previous day would have been forgotten at the sight of the joy of the children. And if less manifested, not less real and deep is the pleasure given to the adult inmates of our hospitals and infirmaries by the gift of a flower. To quote the words of one of our "dailies" on this subject, "We who are full of life and strength in the world scarcely realise how much true pleasure the sight of a flower can bring to a poor sick creature. The Rose is then indeed a messenger of love, and the Heartsease grows worthy of its name. The weary eyes, tired with looking the livelong day at bare hospital walls, find rest and comfort at sight of a bright nosegay; and the pained patient, gazing through and beyond the flowers, in spirit quits the sick bed to sit in green arbours of country gardens, and watch the glittering dragon fly dart across the lawn and hide among the Forget-me-nots, Stocks, and Lupins; hears the bee hum in the drowsy air, is warmed in the tender sunshine, and comes back to the narrow bed and the nasty medicine a better patient and a cleaner soul."

Who, then, is willing to help in this good work? Who, when his flowers have fulfilled their mission at the exhibition table, will send them on the worthy mission, carrying joy and comfort to some of the sufferers in our hospitals?

Will those exhibitors who are willing at the close of the shows at the Alexandra and Crystal Palaces to give their spare blooms (or some of them) to the Mildmay, Spitalfields, or Bow Road Flower Missions, please send a line to that effect for insertion in the Journal?—A LOVER OF ROSE SHOWS.

ACANTHACEOUS PLANTS FOR WINTER FLOWERING.—No. 1.

WITHOUT wishing to depreciate the efforts which are continually made to introduce new plants to the notice of cultivators, we are nevertheless more and more convinced every year that in our eagerness to possess these novelties we pass over, neglect, and ultimately entirely lose many fine ornamental plants, the genuine merits of which are not always equalled by the more recent introductions. Especially has this been the case with the natural order of plants to which we purpose devoting a few remarks. Although many of these even are recent additions to our plant houses their beauties are really known to but few. We consider this order of plants invaluable for winter decorative purposes. The plants commend themselves to the attention of amateurs with limited space. They are very easily grown, produce an abundance of brilliant and many-coloured flowers, which last a considerable time in full beauty, and that, too, mostly through the winter months. With these few general remarks we shall endeavour to promote the cultivation of some of the most useful of the tribe.

DIPTERACANTHUS.

A genus containing an immense number of species of more or less beauty, those here introduced being extremely ornamental. The flowers produced from one-year-old plants are always the finest. If cuttings are struck in the spring they may be grown into plants sufficiently large for most purposes. The soil should consist of about equal parts of good leaf mould, peat, loam, and sand. They enjoy an abundant supply of water, and the temperature of an ordinary moist stove. Insect pests must be kept away by the frequent application of the syringe.

D. Herbstii.—This species, though somewhat doubtfully referred to the present genus, is perhaps one of the very finest Acanthaceous plants for winter decoration. If proper attention is given to stopping the shoots during the growing season a handsome plant will have been formed by the end of September, about which time its flowers first begin to open, and continue to do so for some three months. It is a half-shrubby plant, producing opposite lanceolate leaves about 6 inches in length and about 2 inches in breadth, upper side deep green, with a grey band traversing the entire length of midrib on each side, the lower surface dull purple. Flowers produced in clusters of about five from the axils of the upper leaves; tube of corolla very slender and nearly 3 inches long, the upper portion much enlarged and pale rosy purple in colour, limb

white, spreading, five-lobed, each lobe having a central notch or division. It is said to come to us from Brazil, but its real origin is somewhat obscure.

D. affinis.—Here we have another very fine plant, but still it must be confessed it has proved with us much less prolific than the preceding species. Neither is it naturally so purely a winter flowerer; this, however, can be overcome by continually stopping the young growths up to about the end of August. Leaves opposite, ovate acuminate at the apex, with an obtuse base upwards of 2 inches in length, deep green above, paler below. Flowers large, about the same length as the leaves, mostly solitary from the axils of the upper ones; tube long, and enlarging upwards; limb large and spreading, five-lobed; colour rich scarlet. Native of Brazil.

Fig. 65.—DIPTERACANTHUS SPECTABILIS.

D. spectabilis (fig. 65).—In this plant the leaves are ovate acuminate, slightly hairy, some 2 inches long, and deep green. Flowers produced from the axils of the leaves on the upper branches, mostly in pairs, large, and spreading; of a rich deep blue. Native of Peru.

D. caulescens.—Certainly less beautiful than either of the preceding, but the profusion with which its purplish-lilac flowers are produced through the very depth of winter amply compensates for its somewhat less decided colour. Naturally this species is of a rather straggling habit, and will therefore require a little extra attention in the matter of stopping side shoots, &c. Leaves opposite, nearly 2 inches in length, somewhat oblong acuminate, full green above, paler below, slightly tinged with dull purple. Flowers in pairs; base of tube white, upper part large and spreading, limb five-lobed, lobes slightly crisp, purplish-lilac, more or less streaked with lines of a deeper hue. Native of various parts of Brazil.

NEPENTHES.

THE remarkable modification of leaf and petiole existing in Pitcher-plants is one that has attracted considerable attention,

and has given rise to numerous conjectures as to its probable utility, none of which have, however, been satisfactorily substantiated. In consequence of the interest connected with this peculiarity of the genus Nepenthes it was early brought under cultivation, the first species known in this country—N. distillatoria—having been introduced from China in 1789, when it was soon found to possess besides botanical interest some considerable cultural value. Since that time numerous species

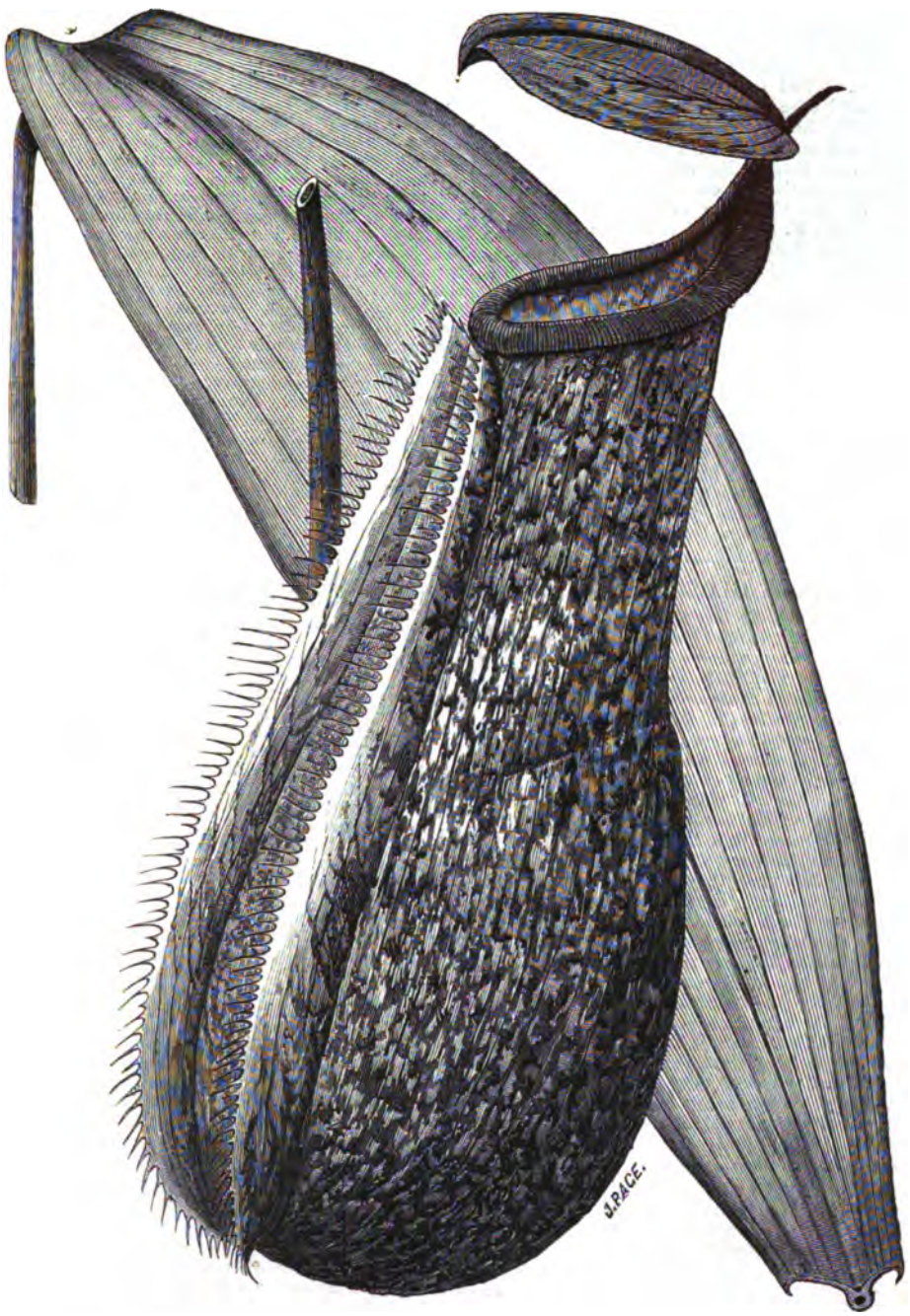


Fig. 66.—NEPENTHES COURTII.

and varieties have been imported, the aid of the hybridist has been called in to increase the number and beauty of their forms, and we now find in general cultivation over twenty species, varieties, and hybrids, many being extremely beautiful.

Among the best of the species and varieties we may mention N. ampullacea, a very strong-growing species with light green pitchers, which in the variety picta are streaked and spotted with dull red; N. Rafflesiana, bearing handsome dark green pitchers blotched with red. N. Hookeriana is by many regarded as a variety of the last form, from which it differs in

the pitchers being rounder and more brightly coloured. N. gracilis and the variety major are both good and ornamental, with dark green pitchers streaked with red. The rubra variety of N. distillatoria is also distinct, with very deep red pitchers of large size. N. sanguinea, a Javan species, has blood-red pitchers, but although attractive it is rarely seen.

Beautiful though the foregoing are in every respect, yet to see the qualities of Nepenthes at their best we must seek among the numerous handsome hybrids that have originated in this country of late years. Of these many have been sent out by Messrs. Veitch of Chelsea (to whom we are indebted for our engraving), whose skilled foremen Mr. Dominy and Mr. Court have by continued care and perseverance succeeded in raising some remarkably handsome forms. We need do no more than mention the names of N. Dominii, N. Chelsoni, N. hybrida maculata, N. intermedia, and last but not least N. Courtii (fig. 66) in support of our statement. The last named was raised by Mr. Court by crossing an unnamed species from Borneo with N. Dominii. It is dwarf in habit, with leathery leaves and dark green pitchers clouded with dense, irregular, crimson spots, the length of the pitchers frequently attaining 8 inches. It is a most beautiful form, and is highly deserving of cultivation owing to its free growth and numerous pitchers produced.

Nepenthes require a soil composed of two-thirds fibrous peat to one of sphagnum moss, and are best grown in baskets, as they can be then seen to the best advantage, and being superficial rooters, provided water is liberally supplied, a basket is much to be preferred to a pot. The temperature during summer should be about 70°, and should not fall below 65° in winter, except for N. distillatoria, which endures a lower temperature than any other. Moisture must at all times be freely supplied, as they thrive in a high and moist temperature, and are therefore adapted for the stove or Orchid house.

EUCALYPTUS GLOBULUS.

THE article on this tree in your last issue may perhaps be usefully supplemented by the record of last winter's experience in South Devon. Of some six specimens all survived, though beds of Echeverias which had stood for years were destroyed, and Orange trees protected with canvas awnings were seriously injured by the frost. The survival of the Eucalyptus I attribute to the fact that they were two years old; for although in some cases the growth of last summer was killed they all broke out again from the old wood, some close down to the roots. It would therefore seem important that anyone wishing to acclimatise these beautiful shrubs should only plunge them in large pots for the first year, taking them indoors (a shed would suffice), during their first winter. Even in more extreme climates I cannot help fancying they might be preserved through the winter by the simple expedient of twisting hay-bands round their stems, which would then almost certainly break out again in the spring. Their growth is so rapid that it is but for a very short time that their appearance would be unsightly.

With regard to the different varieties, Messrs. Haage and Schmidt of Erfurt seem to keep the seeds of almost all except E. citriodora and E. Gunnii; but out of those I procured from them several (including E. amygdalina) failed to germinate, probably because the seed was old. E. calophylla seems a promising species, and fresh seed can be obtained of Mr. Thompson of Ipswich. Messrs. Veitch of Chelsea supply seed of several species, and Mr. Bull offers plants of E. citriodora. —H. J. BIDDER, *Stoke House, Dartmouth.*

I WRITE to inform you that several trees of Eucalyptus globulus that seemed to have been killed by the late severe winter are now beginning to put out shoots from the stems just at the surface of the ground. Perhaps those in other localities may do the same in time.—J. BOURKE, *Vicar of Kilmeadow, Waterford.*

MULCHING PEAS.—The advice given by Mr. Elliot at page 441 is as sound as any that possibly could be given on Pea culture, and those who put it in practice may depend on being well repaid for their extra labour if the remainder of this summer (?) should prove excessively hot and dry. I believe many who would mulch their Peas are prevented from doing so by want of material; and to such I would say, Grass from lawns, which nearly everybody can secure at this season of the year, is as good for the purpose as anything that can be used.—A KITCHEN GARDENER.

THE SOUTH ESSEX HORTICULTURAL SOCIETY'S SHOW.—JUNE 12TH.

THE annual Exhibition of this prosperous Society was held in the picturesque grounds of J. G. Barclay, Esq., Knott's Green, Leyton, the weather in the afternoon proving extremely favourable. The numerous visitors greatly appreciated the kindness of the proprietor in throwing open his beautiful and extensive garden to their inspection, and the attraction of the Flower Show was considerably increased by two excellent bands. The exhibits were contained in two tents, and the arrangement of the plants in the large marquee was very good, and reflected great credit on the Secretary, Mr. Cox. The tent was well filled, and the competition in some cases was rather brisk.

Stove and greenhouse plants were particularly good, and in the class for eight specimens Mr. Donald, gardener to J. G. Barclay, Esq., carried off the first prize with handsome and healthy plants; Mr. Bones, gardener to D. McIntosh, Esq., Havering, being a good second; and Mr. Douglas, gardener to F. Whitbourn, Esq., third with small plants. For four plants Mr. Monk gained the first prize with good specimens, Azalea Brilliant being very beautiful; Mr. Bradley, gardener to E. Coope, Esq., Brentwood, and Mr. Fisher, gardener to Rev. W. Fitzgerald, Wanstead, following in the order mentioned.

Orchids were more numerous and in better condition than those generally seen here. For a collection of six Mr. Douglas was awarded the first prize, his groups containing extremely good specimens of Orchis foliosa, Lælia purpurata, and Epidendrum vitellinum. Mr. Walter, gardener to A. Borwick, Esq., Walthamstow, was second, one plant of Dendrobium nobile being profusely flowered. J. R. Scott, Esq., Walthamstow, was placed third; Mr. E. Cox being awarded an extra prize. For three plants Mr. Monk, gardener to R. Fowler, Esq., Leytonstone, was first; and Mr. Walter received an extra prize for a collection including the peculiar Masdevallia Backhousiana and a pretty white small-flowered Angræcum from the Comoro Islands.

Pelargoniums were numerous but rather scant of blooms, except in Mr. Donald's first-prize collection of six fancy varieties, which were well grown and covered with flowers, Ellen Beck and Mrs. A. Wiggan being remarkable. Mr. Bones was second in the same class. For six show varieties Mr. Day, gardener to W. Tewsen, Esq., secured the first position, being followed by Mr. S. Crawley of Leyton, and Mr. Donald. Mr. Monk took the first prize for the only collection of four show varieties. In the amateurs' class for four Mr. Albiston was first with small plants.

Two classes were provided for foliage plants, six and four specimens respectively. Mr. Donald received the premier award in the former class for a good collection, in which Anthurium crystallinum was very prominent. Mr. Douglas was a good second, Mr. Monk and Mr. Bones being equal thirds. Mr. Bradley received the first prize for the only collection of four plants, which included some well-grown plants.

One collection only of Azaleas was staged by Mr. Donald, who obtained the first prize with plants of average merit. Two very good collections of Palms were exhibited by Mr. Douglas and Mr. Bradley, and they were awarded the first and second prizes respectively. Heaths were well shown, and Mr. Donald's premier collection was highly commendable, the recipients of the second and third prizes (Mr. Bones and Mr. Fisher) also exhibiting good plants. There was close competition in the class for six Coleuses, four collections being staged, the varieties well chosen and the colours good. Mr. Monk, Mr. Fisher, and Mr. Peters were placed in the order named. For four Caladiums Mr. Smith, gardener to A. Grimwood, Esq., Walthamstow, was first with well-grown plants in 10-inch pots, and Mr. Douglas was second, also with fine specimens, but in larger pots. Mr. Cox was awarded the first prize for the only collection in the amateurs' class.

Calceolarias were numerous and certainly above the average, Mr. Donald being first with six very even and well flowered plants, followed by Mr. Foster and Mr. Fenn. Mr. Mallett, gardener to H. Collier, Esq., Walthamstow, secured the first prize in the class for four with small specimens, and Mr. Foster was placed second. The groups of plants exhibited, although very small, were elegantly arranged and included several good specimens.

In the class for six exotic Ferns Mr. Douglas was first with handsome specimens, Mr. Bones second, and Mr. Bradley third; Mr. Donald being first with six plants, followed by Mr. Monk, both collections being good. An amateurs' four was staged by Mr. Abbott of Wanstead, who secured the first prize with pretty plants. For British Ferns Mr. Walter was first with fine Lastreas and Athyriums. In the class for twelve and twenty-four bunches of cut flowers there were several competitors; Mr. J. Reynolds, jun., Leyton, being first in the former, and Mr. Douglas in the latter. Mr. Soder, gardener to O. Hanbury, Esq., Brentwood, was first with twenty-four cut Roses in excellent condition. The table decorations, button-holes, &c., were good, and Messrs.

Abbott, Soder, Day, and Foster were the chief prizetakers. Four pretty miniature designs for a flower garden were exhibited; Mr. Crawley being awarded the first prize, Mr. Peters the second, Mr. Monk the third, and Mr. Day an extra prize. Mr. B. S. Williams, Upper Holloway, staged an interesting group of stove plants and Orchids which was greatly admired.

The fruit was not first rate, nor yet very abundant. The only collection in the class for White Grapes was brought by Mr. Douglas, who obtained the first prize; and in the class for Black Grapes Mr. Bones was first with three good bunches, and Mr. Douglas second. For a dish of Strawberries Mr. Douglas was first with extremely fine fruits of Auguste Nicaise, and Mr. Smith second. Mr. Bones, the only exhibitor, was first with one good Melon. There were five entries in the class for a brace of Cucumbers, Mr. Mallett being placed first, Mr. Douglas second, and Mr. Monk third.

Vegetables were tolerably well shown both in the amateurs' and open classes, Mr. Douglas and Mr. Monk securing the chief prizes for the collections.

THE PROPOSED INTERNATIONAL SHOW.

I AM one of those who desire to see a repetition of the great International Horticultural Exhibition of 1866, and I admire the energy that has been displayed by Mr. Wills in his endeavour to bring about such an event. It is quite evident that the standing Committee do not intend to move, and no one can find fault with them if they do not see their way at present to carry out the Show to a successful issue. As Mr. Wills is so strongly convinced that he can do what the Committee cannot do, and if he is so strongly backed as he says he is with supporters, why does not Mr. Wills take the initiative, form his own committee, start a subscription list, and convince the public that the thing can be done? I will undertake to say that, if Mr. Wills will do this, he will meet with many willing workers; and when the public see that he is in earnest, and that there is a reasonable prospect of the Show being carried out, they will support him. But so long as Mr. Wills confines himself to writing letters which have no point in them, calling meetings at which there is no organisation, and talking about thousands and tens of thousands of pounds with as much glibness as if pounds were pence, there is not the remotest chance that he will either do anything himself or induce any influential body of men to co-operate with him. A courteous but guarded letter from the Prince of Wales's Secretary, and a letter from Her Majesty's Commissioners stipulating that they are to have 25 per cent. of the receipts, are no guarantees for the success of the undertaking. I want to see Mr. Wills's first subscription list.—OLD COMMITTEEMAN.

BRITISH PLANTS.—No. 1.

IT is much to be regretted that botany is not so well understood by the young gardeners of the present day as it was by their forefathers in the time of George IV. It is true that most large towns have their naturalists' society, wherein botany is studied in conjunction with other sciences; but it is often rather as an adjunct to the others than as possessing any particular attraction in itself, and the excursions into the country made by such bodies have often other objects in view than the discovery of rare British plants. It must be admitted an expedition to long distances by young gardeners for the sake of securing some scarce native plant is of rare occurrence at the present time, although it was a frequent practice when the present century had only reached its second decade. This appears to be due to several causes, the first being the disregard, amounting almost to contempt, thrown on the Linnæan system of botany by those who assume to be our leaders at the present day, to which may be added the difficulty of mastering the details of the system they profess to teach. These causes have resulted in confining a knowledge of botany to the limited few who have leisure or means to make it their study, shutting out entirely, or nearly so, the ordinary young gardener of only moderate education. It may be said that the Linnæan system does not teach enough, but it enabled our fathers to ascertain the names and class of many plants, and there are plenty of working gardeners who have not time to pursue investigation further. This subject is more suited to a younger person than myself, and one whose eyesight is clearer, for nothing requires a better use of this organ than an investigation of the characteristics of plants; but I will here leave the subject and proceed to give a slight outline of some few native plants that were in my younger days sought for and admired by those to whom a long walk was no hardship, and even the difficulties or adventures of the route only added zest thereto.

WATER PLANTS.

Nymphæa alba (the Water Lily), is certainly one of the most beautiful of our wild plants, and the flowers will bear comparison with any exotic plant. Everybody knows where it is to be found, but everyone is not aware that its stems attain to such a large size as they do when fully developed. In transplanting this popular aquatic it is necessary to secure a portion of the stem; and it is not the most easy plant in the world to remove with success.

Butomus umbellatus.—This is certainly not so abundant as the Water Lily, and perhaps does not exist in such deep water, but when in flower it is very pretty, and being the only plant usually met with in the ninth class of the Linnæan system it used to be much sought after. I have met with it in ditches, but it is by no means common, and certainly less so in the south of England than in the north. The common name is Flowering Rush, and is well worthy a place in ornamental water, its spear-shaped leaves contrasting well with the broad expanded foliage of the Nymphæa.

ALPINE PLANTS.

Lycopodium Selago.—This conspicuous plant is, I believe, now included in the genus Selaginella; but at the time when I became first acquainted with it it was a Lycopodium, and certainly the most singular one in the family. When found in its natural habitat it resembles a small branchy sprig of a Conifer or Cypress stuck into the closely-shaven grass often met with in elevated districts; at least it was found very plentifully so growing on the hillsides and tops of the Cross Fell range of the Cumberland hills, every plant standing up several inches above the grass and showing themselves to great advantage. I have often wondered that it has not been introduced into some cultivated fernery; but perhaps, like some other alpine plant, it may not easily conform to the restraints of cultivation. Of its medicinal qualities I know but little, but, judging from what I have seen of it, I should say that it is avoided by the mountain sheep, and may possibly be bitter or astringent.

Saxifraga oppositifolia.—This plant, although found in the range of mountains as the above, I confess to have never found wild, but I know it is found so, and is often sought for by those ambitious of discovering showy choice British plants. It also bears cultivation better than many other plants found in a wild state. Its highly coloured blossoms resemble some of the dwarf Phloxes. It was never my good fortune to find it in flower in its wild haunts, and it is not easily discovered at other times. I believe it is found in fully exposed situations; and I may add here that the Lycopodium mentioned above was growing in as fully exposed a situation as could be imagined anywhere.

Saxifraga cæspitosa.—There seems some difficulty in accurately defining the various species of the mossy class of this genus, as S. hirta, S. muscoides, and some others so nearly resemble each other that I feel at a loss to be fully certain which one I found growing in a position only a very short distance from the Lycopodium already noticed, only instead of growing amongst the grass on the plain turf it was generally by the side of stones, over which it spread very closely, and presented as beautiful evergreen as could be wished for by the most fastidious lovers of carpet bedding of the present time, and equalling the brightest green that can be found in vegetation, retaining its colour even in midwinter.—J. ROBSON.

THE NATIONAL ROSE SHOW.

THIS day (June 16th) I have received my form of entry for this Rose Show. By the 21st—that is, next Saturday, the entry must be in the Secretary's hands. Is it too late to ask him and the General Committee to reconsider the matter of the fixtures? As I write now the Rose Lamarque, which blooms with me often in March, being against a warm chimney, is just coming into bloom. The Hybrid Perpetual Roses, the few I have, are hardly large enough for disbudding. I am aware that my friend Mr. Baker is in a much more forward state, but his place is walled in on all sides but the south, and a more sheltered spot could not be imagined. Judging by my own trees, unless there is a rapid change in the weather I do not see how the nurserymen can possibly exhibit. Is it too late to reconsider the matter? Shows at the Palace have so often been spoilt by the early fixture that

I fear the National Show will be ruined unless the date is changed. I have no personal interest in what I write, as I do not think I shall show unless I can cut twelve good Teas. I only write in behalf of the Society and of the general exhibitors. —WYLD SAVAGE.

THE DATES OF ROSE SHOWS.

As the backwardness of the season has led to many changes in the fixtures of Rose shows I subjoin a list.

Farningham	Wednesday, June 25th.
Maidstone	Thursday, June 26th.
Brockham	Thursday, June 26th.
National (Crystal Palace)	Saturday, June 28th.
Torquay	Tuesday, July 1st.
Reigate	Wednesday, July 2nd.
Canterbury	Thursday, July 3rd.
Oxford	Thursday, July 3rd.
Alexandra Palace	Saturday, July 5th.
Royal Horticultural Society	Tuesday, July 8th.
Norwich	Wednesday, July 9th.
National (Maidenhead)	Saturday, July 12th.
Leek	Tuesday, July 15th.
West of England	Wednesday, July 16th.
Birmingham	Thursday, July 17th.
Newton Stewart	Friday, July 25th.
Helensburgh	Saturday, July 26th.

—D., *Deal.*

FORCING OF STRAWBERRIES.

IN preparing Strawberry plants for forcing I can confidently recommend the following system:—I divest the runners as early in July as possible by using the trowel to lift the strongest and best rooted, potting them in 3-inch pots in good loam. I place them in a close frame for about three weeks until they fill the pots with roots; I then give them their final potting, shifting the plants into 6-inch pots in a mixture of fresh loam and decomposed horse droppings, the pots being well drained and the soil made firm. I again place them in cool frames, where they remain till required for forcing, never allowing the plants to suffer by want of water. I draw out successions as required, commencing in January, the plants being placed in the vineries on shelves close to the glass. I prefer standing the pots in saucers, as we find it quite sufficient to water the plants once a day. Our time is too much occupied with other plants, &c., to water twice a day; in fact, I find if the Strawberry plants are watered well daily, and the saucers filled at the same time, it is all the plants require, especially in a season like the present one. When they are showing bloom I give them liquid manure every alternate day. I think if some of your correspondents adopt this method they will not only find it the quickest way of preparing Strawberries for forcing, but satisfactory results will be attained. The best varieties and the only sorts I force are President, Sir J. Paxton, and Keen's Seedling.—H. C. OGLE, *The Gardens, Turnworth.*

WORK FOR THE WEEK.

FRUIT HOUSES.

Vines.—Let there be no delay in thinning late Grapes; and in order to secure large and high-finished berries thin them well, especially in the interior of the bunches, and do not overcrop, as Vines that are overburdened never finish their fruit well, and it is inferior in keeping qualities. Outside borders, now that the weather is more favourable, should be well watered and mulched with short material, so as to attract the roots to the surface; for to allow the border to get dry at the surface causes the roots to strike down in quest of moisture, and the consequence is that in a cold wet season the Vines start very badly; the bunches, instead of elongating, curl, twist, and wither, or if they escape that the bunches are often spoiled through shanking. Neglect in watering the borders and mulching, especially where the Vines are carrying a heavy crop, is not only disastrous to the present crop but induces red spider and the premature ripening of the foliage, and injuriously affects next year's crop of fruit. The cold nights will still necessitate the use of fire; it is a great mistake to let the fires out now and have to fire hard later on to get the fruit ripe. All late Grapes thrive in a high temperature with abundant food in liquid form both at the roots and in the atmosphere. Fires should be employed to maintain the temperature at 65° to 70° at night, and 70° to 75° by day in dull weather. Admit a little air at first, and increase the ventilation with the temperature, allowing an advance to 85° or 90°, closing the house at 80° or even 85°, damping the paths, &c., well at closing and again before nightfall. Provide a little ventilation the last thing at night, which will prevent a vitiated atmosphere and allow of the foliage drying in the morning by the time the sun acts powerfully. Late Grapes generally are backward, hence the desirability of making the most of the solar heat by the application of artificial heat as may be necessary. Allow all the foliage that can be fully exposed to light, but when the space is fairly covered keep the shoots closely pinched. Avoid cold draughts or sudden depressions of temperature, the most prolific causes of rust. Newly planted Vines growing freely should have all the foliage practicable retained so as to promote root-action, and they must be encouraged by copious waterings and mulchings so as to keep them on the surface. Close early on fine afternoons and syringe freely. Where the Grapes are ripe admit air freely when the weather is favourable, not allowing the temperature to fall below 65° at night.

Peaches and Nectarines.—A deficiency of water at the roots is a prolific source of red spider, the want of surface mulchings causing the roots to descend, and long-jointed wood results, which is accompanied by gum, and fruit that may set right enough but is cast when stoning. Mulch all borders with 2 inches of short manure, and water liberally. These remarks apply more especially to inside borders, but during dry hot weather the outside borders should be well watered and mulched. If the trees are weak and carrying a full crop a sprinkling of guano over the borders prior to each watering will be an advantage, and is one of the best antidotes against red spider. When the fruit is all gathered in the earliest house admit all the air practicable, keeping the moveable lights open to the fullest extent, and if the lights can be taken off it may be done after ten days or a fortnight of free ventilation. The foliage must be kept free of red spider by syringing, and if there be any scale syringe with paraffin at the rate of a wineglassful to four gallons of water, keeping it thoroughly mixed during application by syringing alternately into the liquid and over the trees. Any weakly trees may have an application of liquid manure or guano, which will assist the trees to mature the buds for next season. Trees with the fruit ripening must not be syringed, but a moderate moisture should be maintained until the fruit is ripening, watering copiously at the roots and admitting air liberally. In gathering Peaches great care is necessary, as the least pressure makes a mark and spoils their appearance. A piece of wadding should be held in the hand and the fruit removed by gentle pressure, and being then laid gently in a padded shallow basket. Former instructions must still be attended to in succession houses; guarding against overcrowding the foliage and overcropping, syringing frequently to keep down red spider, and tying-in and regulating the shoots, removing any leaves overhanging or shading the fruit when it commences to colour, so that it may have the full benefit of sun and air.

Cherry House.—As soon as the Cherries are all gathered syringe the trees promptly, as the abstention from syringing during ripening and preservation of the Cherries facilitates the increase of red spider; and if the trees are much infested, or there be any trace of black fly, apply an insecticide—8 ozs. soft soap to a gallon of water with a pint of tobacco juice to each gallon, and if necessary fumigate, as it is important the black fly as well as red spider be thoroughly eradicated. Admit air freely, and when the trees are thoroughly hardened remove the moveable lights altogether, the rains and refreshing dew being good against red spider and improve the buds wonderfully. There must not be any deficiency of water at the roots, trees in pots being kept well supplied. The syringing of Plum trees must cease when the fruit commences to colour, as it is liable to crack if continued after that time, and is destructive both of bloom and quality. Afford liquid manure to the roots whenever the necessity for watering arises, and give it so as to thoroughly moisten the soil. A mulching of short manure will assist the fruit in swelling by inducing active roots at the surface, and will maintain the soil in an equable condition as to moisture.

Figs.—The first crop being gathered generous treatment will be required to enable the trees to swell the second crop, syringing twice a day to keep red spider in check, and affording liquid manure when watering is necessary, trees in pots requiring it daily, and those in borders once or twice a week according to the vigour of the trees and extent of the rooting area, those with borders of limited extent requiring it more frequently than those with the roots less restricted. The second crop should be thinned where thickly set before the Figs are the size of Walnuts, and in thinning reserve the largest fruit at the base of the shoots. Trees in pots should be mulched with rich material. When the fruit commences to ripen in the succession or latest house a free circulation of warm dry air should be afforded, which is essential to high quality, not less so being the tying-in and regulating of the shoots by thinning and stopping, so as to afford the fruit the benefit of all the light practicable. Trees in pots coming on for next season's early forcing must not on any account be neglected or they will disappoint the grower. They must have all the light possible, and not be at a greater distance from the glass than is necessary for their growth, keeping them well syringed and supplied with liquid manure so as to secure sturdy growth, and when the growth is complete they may be placed outdoors in a sunny corner to ripen the wood, or rather to induce rest; all fruit trees, especially those for very early forcing, requiring to have the wood matured early.

Cucumbers.—So soon as the night temperature can be maintained from falling below 65° fire heat may be dispensed with, much

being effected by early closing. Continue to look over the plants weekly, well thinning-out the old growths, and giving copious supplies of liquid manure twice a week. Only syringe in the afternoon, as with bright weather morning syringing is often the cause of much mischief to the foliage. Maintain a good moisture in the house all through the day. Night coverings will not now be necessary for pits and frames, closing at 3 to 4 P.M., assisting plants in full bearing with liquid manure, taking care not to wet the foliage. Remove bad leaves as well as exhausted growths, thinning the shoots once a week, stopping the growths at one or two joints beyond the fruit; and when the plants are enfeebled by bearing top-dress with lumpy loam, and layer some of the younger growths at a joint, from which roots will be emitted and strengthen the succeeding growths.

FLOWER GARDEN.

The planting of the beds and borders being completed the work of this department will subside into the usual routine of watering, pegging, removing dead or useless flowers, and keeping the surface loose so as to promote the growth of the plants, mulching Violas, Verbenas, and Calceolarias with some decomposed dung so as to promote continuity of growth and flowering. Seedling perennials should be pricked out so as to induce bushy habit, and multiply the roots so as to enable them to be transplanted with greater safety. If not already done make a last sowing of Sweet Peas, Mignonette, and other hardy annuals. Dahlias and Hollyhocks must have plenty of water, mulching the surface with short manure; stake the plants securely, and restrict Hollyhocks intended for show to one stem. Brompton, Giant, and Queen Stocks sow for flowering next spring, as well as Wallflowers, along with any hardy perennials and biennials, the sowing of which has been delayed or the plants not having done well from former sowings. Roses will be greatly benefited by mulching with decomposed manure and liberal supplies of liquid manure. Herbaceous borders will now require constant attention in staking and tying the various plants as they advance in growth. Avoid the bundling system, as it prevents the plants being seen to advantage, the stems become drawn, and many of the principal leaves are destroyed. Each shoot should be secured to a stake separately, or if only one stake is employed the different branches should be looped up so that each may have light and present a more natural appearance. The larger plants will be much benefited by thinning, removing the weakest shoots, thereby concentrating the strength in those remaining, inducing finer heads of bloom. The hoe and rake should be run frequently over the ground to destroy weeds and give a neat appearance. Annuals sown in masses should be well thinned out, or they will have a weedy appearance, as neither plants nor flowers will come to their full size and development. The stock of plants for spring bedding will now require attention. Primroses, Polyanthuses, and Auriculas should be divided and planted upon a shady border, also double Daisies, keeping them well supplied with moisture. Arabis and Aubrietias with Myosotis dissitiflora strike readily from cuttings upon a shady border, or rooted divisions may be employed. Cuttings of Pansies and Violas may also be rooted successfully on a shady border. The cuttings should be taken from the base of the plants, and when rooted should be stopped so as to induce well-branched plants. Rhododendrons, Azaleas, and Kalmias as they go out of bloom should have every flower stem and seed pod removed alike for neatness and increasing the vigour of the plants, removing any loose or straggling shoots if necessary, so as to secure uniformity of growth. Mow as often as necessary to keep the grass in good order, with the edges neatly trimmed, the walks free of weeds and well rolled. Climbers should be looked over frequently, thinning the growths where too crowded, and securing by tying or nailing, affording copious supplies of water to plants in dry borders, especially Roses, and feeding with liquid manure with a view to continuity of flowering, removing decayed flowers, &c.

PLANT HOUSES.

Greenhouse.—Fuchsias that commence flowering early should be well supplied with liquid manure, and well syringed overhead every day to keep down thrips and red spider. Plants that are required for late August or early September flowering if now plunged out of doors in ashes in a sheltered position—but where they will receive all the sun and light possible, stopping the shoots as they require it—will make compact growth and flower more profusely than if continued under glass all the time. About a month before they are required in flower they should be replaced under glass, well attended to with water and liquid manure, and be properly trained. Small plants that were struck this spring should be potted-on as they require it and be kept in a light airy house or pit, watered and syringing them freely to keep down insects, and stopping as required to induce well-furnished plants. Young plants of Kalosanthes intended for next year's flowering should be placed in the open air in the full sun and be well supplied with water, and if in small pots plunge them in ashes to prevent their drying up too quickly, allowing them to remain outdoors until the early part of September. Plants that are coming into flower should be neatly tied, and as the heads of bloom begin to expand place the plants in a sheltered position at the north side of a wall, where they will have shade from mid-day sun, which will heighten the colours of the flowers immensely. When fully open they may be removed to where they are required, and shaded from the sun so as to prolong their flowering. Veronica Andersoni and V. salicifolia are very useful autumn-flowering plants, young healthy plants being now potted; and to keep the plants dwarf and bushy the pots should be plunged outdoors in a sheltered situation, and when the pots are filled with roots give liquid manure once a week. Salvia splendens, S. gesneræfolia, and S. Heeri should be at once placed in the blooming pots and plunged in ashes outdoors to maintain more uniform moisture and prevent the lower leaves falling. Echeveria retusa requires similar treatment to Kalosanthes, the plants attaining greater vigour by being placed outdoors, and on receiving a moderate shift will make good plants that will flower the greater part of the winter, and are very durable. Double Primulas with an inch or so of stem may be taken off and potted singly in small pots in sandy loam and peat with a fourth of sand; placed in gentle heat and kept moist they will root freely, the flowers being more serviceable for cutting than the single varieties. Primulas and Cinerarias from seed this spring should be shifted into larger pots as they require it, and receive their final shift as soon as the plants are sufficiently advanced. Tree Carnations for winter flowering should have the flowering pots, and be plunged outdoors in a sheltered but sunny situation, affording liquid manure when the pots are filled with roots. Petunias that were struck in spring and grown on will make bushy plants, and should have their final potting, 6 or 8-inch pots are large enough, employing turfy loam with a little well-decomposed dung or leaf soil and a sprinkling of sand. They should have a position in a cool airy house or pit, and if liberally treated will flower profusely later on. Seed of Cinerarias and Primulas should be sown to raise plants for spring flowering. A batch of Zonal Pelargoniums now stopped, or if need be cut back, and encouraged to make growth in a cold frame, potting when they have broken, will with careful treatment flower finely, and be very useful in late summer.

FLORISTS' FLOWERS.

Carnations and Picotees.—Probably no more trying season has been experienced for some years by growers of these beautiful flowers than that through which we have just now passed, at least by those who have not the advantage of being able to keep them under glass until the inclement weather had passed away. More especially has this been the case with those who grow them in beds, for nothing could have been more miserable than the aspect which they presented after those six months of wet, cold, frost, snow, and wind. They have, however, much recovered, and from henceforth we may hope they will have a better time of it. They are now beginning to spindle for bloom, and it will be necessary to stake them if this has not already been done, and to tie the flower stems loosely. The beds should also be gently stirred and a top-dressing of decayed manure applied; this will tend to keep them cool and moist when the warm weather for which we have been so long looking comes, and imparts vigour to the plants as well. Green fly is also apt to be troublesome, and as they generally congregate at the extremity of the shoots they should be brushed off with a camel's-hair pencil: the same treatment may be pursued with those in pots.

Gladiolus.—It has been difficult to keep the beds clear of weeds owing to the constant rains, but as soon as possible this should be done, and a good coating of manure placed on them. The goodness of this will be washed into the roots by rains or watering, while it will also prevent the too great drying of the surface.

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

BOOKS (*A Lincolnshire Reader*).—The "Cottage Gardeners' Dictionary," price 6*s.* 6*d.* from a bookseller, or 7*s.* 2*d.* by post from this office, will afford you much and varied information on gardening subjects.

GRAPES SCALDED (*J. G., Hayes*).—Permit the Vine to carry more foliage if you can do so without overcrowding, and admit air earlier in the morning. The house should not be entirely closed at night, but the top lights should be left open about an inch. If the scalding does not cease, smear the glass over the Vine slightly with limewash.

SEEDLING PANSIES (*W. Caldwell*).—The flowers are of good size and varied in colour, some of the colours being very bright and rich. The varieties are good for border and garden decoration.

TEA ROSES (*R. T.*).—Mr. Ecroyde Claxton's manual can be obtained from Mr. W. Potter, 30, Exchange Street, Liverpool.

ADDRESSES (*Mrs. Lovatt*).—Mr. Edwards, High Road, and Mr. Goubert, Kilburn Gate, Kilburn.

FLOWERS IN WINTER (*Ignoramus*).—It is impossible to have "Pelargoniums, Fuchsias, Calceolarias, and Roses in bloom from November to May" with no cold pit or any other place but the greenhouse. You may have those flowers in summer, and a few scarlet Geraniums perhaps in winter, striking the cuttings now and keeping the plants dwarf and healthy throughout the summer, pinching off the flower trusses until the autumn. If you had a frame you might grow a few Primulas, Cinerarias, and Cycla-

mens for winter and spring, the seed of which should be sown now. You can try them if you choose with your present conveniences, but you will probably be dissatisfied with the results. Chrysanthemums may be grown out of doors during the summer for flowering in the house in the autumn. Hyacinths and other bulbs purchased and potted in October succeed with little trouble, and are very cheerful in the spring. A Maréchal Niel Rose planted outside in the autumn, the growth being trained inside like a Vine, might afford you some beautiful blooms. As your knowledge of gardening and plant culture is so slight you had better secure the aid of a neighbouring gardener, who may be able to give you some practical advice on the furnishing of your greenhouse. The temperature of the house in winter should be 40° to 45°.

DOUBLE WHITE ZONAL PELARGONIUMS (*Florist*).—Two of the best that we are acquainted with are Mdlle. Amelie Baltet and La Nymphe; both varieties produce fine trusses freely, and are highly worthy of cultivation.

ROSES IN POTS (*A. T.*).—You will find practical notes by a successful cultivator in No. 805 of vol. xxxi. of the Journal, which can be had from the publisher on receipt of 5½*d.* in postage stamps. A manual on the culture of Tea Roses in pots, by Mr. Ecroyde Claxton, and recently advertised in the Journal, might also afford you useful information.

LILY OF THE VALLEY (*J. H.*).—The spikes sent are very fine, the flower stems being stout and 9 inches in length, but the bells are not quite so large as those of a variety named Victoria, which was exhibited at the Royal Horticultural Society by Mr. Hawkins of Twickenham.

CYPRIPEDIUM SPECTABILE (*D. D.*).—This beautiful "slipper" is quite hardy, but is highly worthy of being cultivated in pots. When grown out of doors it should be planted in a mass of spongy peat, the crowns being placed 4 or 5 inches below the surface. When cultivated in pots the same compost should be employed, the pots being plunged in ashes in a cool frame, or be placed in a light position in the greenhouse. The plants require to be drained efficiently and watered copiously during their season of growth, nor must they be allowed to become dust dry during their resting period in winter.

STOPPING VINES (*Surrey*).—As a rule the weaker-growing shoots should be permitted to grow as much as possible unchecked, consistently with preventing the foliage being seriously overcrowded, the stronger laterals being restricted in growth. Do not stop the laterals when the Vines are flowering. Your other question will be answered next week.

HARDWOODED PLANTS (*A Young Gardener*).—Notes on Cape and New Holland Plants will shortly be published, which will afford you the information you require. You will find instructions on the propagation and culture of Acacias, Chorozemas, Tetrathecas, and numerous other plants in our "Greenhouse" manual, post free, 10*d.*

PINE APPLES NOT FRUITING (*G. A. L.*).—As the plants are two years old, strong and healthy, and as they have been recently kept dry and cool, and yet do not "show," we can only suggest that you give them a sudden and decided check. Give no fire heat nor no water, and open wide the top and front lights of the house and let them remain open day and night for three weeks, then close the house, water the plants, and afford top and bottom heat with atmospheric moisture freely, and many of the plants will probably throw up fruit. We have adopted this practice successfully, and we know the plan is being tried now by one of the best gardeners of the day.

MILDEW ON VINES (*Amateur, Cirencester*).—In addition to the means you have already adopted for eradicating the mildew, that of smearing the hot-water pipes with a paint made of sulphur and soft soap, we can only suggest that you dust all the affected parts, berries and foliage, with dry sulphur, first making them slightly wet if necessary, so that the sulphur will adhere to them. The sulphur will kill the mildew, and will not injure the Vines or Grapes. It may remain on for a few days, and then be blown or washed off. Do not burn sulphur in the house. It is a dangerous practice, and should only be resorted to by those who have learned how to burn the sulphur without injury to the Vines. You may winter the plants as usual. They have not been the cause of the mildew visitation. We have seen mildew in vineries this year which have not had a plant in them. Ventilate freely.

STOPPING TOMATOES (*A. Boyle*).—There was no mistake in the answer given relative to stopping Tomatoes. We confine the plants to single stems, and do not stop them until they have attained a height of 3 or 4 feet, according to the condition of the plants or the spaces they are intended to cover. Some are grown in the open ground and secured to stakes, some are secured to walls, and others are grown under glass. Superfluous side shoots are cut off, only those bearing the best clusters being retained, and these are stopped just beyond the fruit. We obtain earlier and better crops by this practice than by any other. We cannot conceive what advantage can be gained by stopping the plants when 3 or 4 inches high, therefore we neither adopt nor recommend that practice. If you can detail a better mode of culture than the one referred to we will readily publish your notes.

LIQUID MANURE FOR CAULIFLOWERS (*Lincolnshire Reader*).—Guano at the rate of a pound to thirty gallons of water, or nitrate of soda a pound to about fifty gallons, and applied copiously, would accelerate the growth of the plants; so also would the other manures you name, also drainings from dunghills. On the expiration of your tenancy all growing crops become the property of the landlord, and you cannot claim any inventory payment for them either from the landlord or incoming tenant unless you have a special agreement with the landlord to that effect.

SEEDLING PELARGONIUM (*R. Brown*).—Your seedling Pelargonium of the decorative show type is very pretty, but we are not sure that it is quite distinct from some others in cultivation. The maroon blotches margined with violet on the blush white petals are very conspicuous; the truss is good and the flowers of fair form. If the habit of the plant is dwarf and floriferous the variety will be useful for decorative purposes. You can, as the raiser, attach what name to it you please.

DESTROYING DANDELIONS (*G. H. B.*).—We only know of two modes of eradicating these weeds—namely, digging them up, or dropping into the heart of each plant a drop of sulphuric acid. The acid should be kept in a stone bottle and be applied with a notched stick. Great care is necessary in the use of the acid, as it burns nearly everything it touches. We have destroyed thousands of Dandelions in the manner indicated. Its use should not be entrusted to either boys or women.

DESTROYING ANTS (*F. C.*).—The following extract from a letter received from Mr. F. C. Clarke, Vinery House, Allerton, Liverpool, will answer your question:—"My insect-destroying compound will kill ants without injury to the roots. I apply the solution, 3 ozs. to the gallon, as hot as I can bear my finger in it, and pour it all about their haunts, saturating the soil well. Last February a nest of ants formed in the roots of one of my Peach trees in the Peach house, and on fine days the branches were swarming with them. One night when I thought the ants were in the nest I poured the solution round the trunk of the tree, and gave the soil a good soaking all round, and next morning not one ant was to be seen." Mr. Abbey has also testified to the efficacy of the compound in destroying ants. The Conifer is Abies canadensis.

MELONS (*A. B. C.*).—Provided the foliage remains quite fresh on the plants which have fruit approaching the ripening stage little or no water will be required, and thus managed—that is, only applying sufficient water to maintain the foliage fresh—we do not think the fruit will crack. The plants on which the fruits are swelling must be watered more copiously, giving weak liquid manure occasionally if they do not swell freely. The temperatures are right. Early-sown Turnips grown on south borders are very apt to run to seed, and breaking of the stems will not induce the swelling of the roots. Plants raised from seed sown now, in good soil and an exposed position, will probably not "run."

PANSIES (*E. L. W.*).—Not knowing the price per dozen you were charged for the plants it is impossible for us to form an opinion as to whether any or what blame can be attached to the vendor. There is only one way of securing Pansies of reliable merit, and which possess the properties required by florists, and that is by purchasing named varieties from cultivators of repute. The prices of good named varieties range from 1*s.* to 2*s.* 6*d.* each. The blooms you have sent are of no value as florists' flowers. They are border varieties, and are purchasable in Covent Garden Market at 1*d.* each.

IS THE STRAWBERRY A FRUIT? (*J. Archbell*).—Strictly speaking the Strawberry is not a fruit, nor are the little seed-like bodies on its surface really seeds, for botanists define the term fruit as the ripened ovary of a flower, although it has popularly a much wider signification, being generally applied to the eatable portion which becomes mature after the flower has faded. For instance, in the Strawberry the pulpy portion is the enlarged succulent receptacle which bears on its surface the carpels (the true fruits), while in the Apple and Pear the calyx tube becomes fleshy and is commonly termed the fruit, and the Mulberry and Pine Apple are principally composed of succulent bracts. Oranges, Peaches, Plums, and Cherries are examples of true fruits.

SUMMER CLOUD (*E. R. P.*).—This is a very useful preparation for shading purposes, and we know it is approved of by gardeners who have used it.

BUILDING GARDEN WALL (*J. E.*).—As the prices of materials vary considerably in different districts you can only obtain a reliable idea of the cost of a wall by stating your requirements to two or three builders in your locality, inviting them to submit estimates for doing the work. Garden walls are usually 9 inches, 14 inches, and 18 inches in thickness. The thickness of a wall should be in proportion to its height. The thicknesses we recommend are, for walls not exceeding 8 feet in height, 9 inches; 9 feet and not exceeding 12 feet, 14 inches; and 12 feet and not exceeding 18 feet, 18 inches; in all cases doing without brick piers, which are unsightly. A wall 14 inches thick built hollow will be found quite as substantial as a 14-inch solid wall, whilst an 18-inch hollow wall is stronger than a 14-inch solid wall. Hollow walls are drier and warmer than those which are solid, and being fully as durable ought to supersede these entirely, more particularly those built 9 inches thick with piers. All garden walls ought to have good foundations; in all cases these should be the depth of the borders, so that in trenching these the foundations may not be undermined or the soil loosened. If the bottom of the trench is firm it will not require to be concreted, but if soft it may be necessary to concrete it, if not its full length, at least in some places where the ground is soft. In such places the trench should be of a greater depth than where the bottom is firm, and be filled to the level of the firm bottom with concrete, which may consist of coarse gravel run with mortar. Ram this quite firm, and then put on a layer of fine gravel. The bottom ought to be made quite level, and if the ground slope proceed by horizontal steps, short or long according to the incline of the ground. The bottom of the trench should exceed in width the thickness of the wall, for the base of this must be twice the thickness of the wall, or have two "sets-on" on each side. A 9-inch wall will need an 18-inch base, a 14-inch wall one of 22½ inches, and an 18-inch wall a base of 27 inches. When the ground is very firm one-half of the above breadths of base will do; but in places where stone is procurable the base may be of that material, commencing with the width of base required for the wall, and battering both sides of the wall upwards, so that at the ground level the thickness will be that of the wall to be built.

HAIR WORM (*R. Coles*).—The above is the popular name of the "peculiar animal" you found on the Lily leaves. Its scientific name is Gordius aquaticus.

NAMES OF PLANTS (*K.*).—The red flower is Lagerstrœmia indica. The yellow flower we cannot determine from a fragmentary specimen. (*E. Wiggin*).—The leaf appears to be that of Lilium giganteum, which will flower if the root is sufficiently matured. The injury to the leaf is not caused by an insect, but probably from scorching. (*Rose*).—The Orchid is Aërides Fieldingi. The Bougainvillea is the same as that which you saw in Italy, but the intenser light of the south has the effect of deepening the colour of the flowers. This we have proved from our observation of the plants in Italy. (*W. D. H.*).—The tree is Cercis siliquastrum, the Judas Tree; the herbaceous plant Waldsteinia geoides. (*J. R. W.*).—Cystopteris fragilis. The slight difference which you perceive from other specimens may be due to some difference in soil, age of plants, or cultivation. (*Capt. Coleridge*).—Viburnum plicatum. (*J. Charters*).—1, Doronicum asiaticum; 2, Arabis alpina; 3, Aubrietia purpurea; 4, Saxifraga rotundifolia; 5, Ornithogalum nutans; 6, One of the Mossy Saxifrages, but too withered for identification; 7, Appears to be a Valeriana, but was too faded to be recognizable. (*S. A. C.*).—1, The fronds are fertile and sterile, not male and female, of Blechnum Spicant; 2, Adiantum pubescens; 3, Begonia lucida; 4, Begonia acuminata; 5, Poa trivialis variegata; 6, Specimen insufficient; 7, Chrysanthemum frutescens. (*J. C. R.*).—1, Geum rivale; 2, Centaurea leucantha; 3, Specimen insufficient; 4, Ceterach officinarum. (*John Pearson*).—If you will send us a good specimen of the flower as well as the leaf we think we can name the plant for you, notwithstanding the failure of the "local authorities" to do so. (*M. M.*).—It is the Aspen. The other is Solanum nigrum. Bees collect pollen for bee-bread to feed the larvæ. (*J. R. C.*).—They are Pyrethrums. The dark one being, we think, Beauty of Lasken; we cannot name the other. We will answer your question next week. (*Stradsett*).—It is the Rochester Castle Pink (Dianthus caryophyllus), being found wild on

the walls of the castle of that town. In Parkinson's time it was called "The great Harwich, or old English Carnation." It is also known as the Clove Pink, because of its colour, and its perfume being like that of the spice called Cloves. It is also sometimes named the Wild Gilloflower, "*quasi* July flowers," as Parkinson says, but we think it a corruption of the old French name for it, Girofié.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

FIELD CULTIVATION OF CABBAGES.

We have occasionally alluded to this subject under the heading of "Work on the Home Farm," but now we propose to describe fully our method of cultivation in the field. Cabbages of different varieties are advocated by some growers; but upon the home farm where they are required chiefly in the autumn and winter months for feeding stock, about three varieties are quite sufficient to supply the wants of cattle, sheep, and swine. On some of the vale and sheltered farms, however, two or three sorts of early cabbages for spring feeding are grown, and when near to towns advantage is sometimes taken when the price is tempting to send portions of the crop to market instead of feeding cattle and sheep with them. The sowing and cultivation for the production of plants for setting-out is important. Sometimes, however, where the land is kind and in high condition, effected by tillage and liberal dressing of dung or artificial manures, the cabbages are seeded for a crop by drilling upon the stetch, in which case it is usual to place a heavy dressing of yard or town manure between the stetches, and then reverse them with the plough, thus burying the manure under the centre of the stetch. When the seed is drilled under this preparation in the month of March the cabbages will attain a large size in the autumn if the land is continually horse and hand-hoed whilst the plants are young. But this plan is only adopted for the autumn produce. We must now refer to the method of producing plants for planting out. We prefer to sow twice a year, thus taking two chances of obtaining plants—in the last week of July or the first week of August, and the first week of March. The land should be clean and well fallowed before the seed is sown; we like to select a spot in the field where the crop is to be grown. The seed beds should be well dressed with guano and superphosphate, and the manure forked-in by hand, and the ground laid up into beds about 5 feet in width, the seed being drilled with the hand drill at 12 inches apart between the lines. This facilitates not only the destroying of weeds but renders the work of pulling plants easy without damaging the residue. By sowing twice a year we can generally obtain a sufficiency of plants notwithstanding the attacks of the fly; but when attacked we use constant dressings of soot, because when rain washes off the soot it is only to follow up the dressing until the plants are in rough leaf and safe, and we never fear the expense or cost, the soot being an ammoniacal manure, which greatly assists the growth of the young plants as well as secures them from the enemy. When we have a sufficiency of autumn, grown plants we do not sow in March, simply because when the strongest plants are planted in the field in October the remainder of the plants left in the beds will be strong enough for planting in May for producing the main crop for use during the next autumn and winter.

The varieties of cabbage we recommend for autumn planting and spring feeding are the Imperial or Enfield Market; but for spring planting and autumn or winter feeding we use three varieties, so that the succession of food may be complete, and that each variety in its turn may be used without waste by splitting and decay in the field. We take the early Oxheart for first use, next the large Champion Drumhead Cattle cabbage; but for the latest feeding we prefer the large Drumhead Savoy. The time of planting for each of these three sorts may be the same, because it is the nature of the sorts to form heads at the different periods. We will now refer to the mode of setting out the plants and the preparation of the land for October planting of the early sorts. The land should be a good clean fallow, but we have often planted after a crop of early potatoes, and where the land is dry and sheltered we plant on the flat or level; but where much exposed we stetch the land and set the plants in the furrows between the stetches, applying by hand guano and ashes in the furrow before planting. This plan protects the plants from bleak winds, and also in the case of heavy snows in winter they are buried, and thus protected from any injury by frost, by ground game, larks, wood pigeons, &c. This protection is extremely necessary, because they have many more difficulties to contend with when planted in the autumn than when set out in the spring. Planting in the furrow also facilitates interculture and earthing-up. May and June are the best months for planting, whether the plants are raised in March or held over from autumn seed-beds. There are, however, no better plants than those raised in the autumn for planting in the spring and summer months, as their stems are often hard and wiry, in which case they will live, in spite of the driest weather, if planted properly; and this is one of the points we shall have to consider presently. In preparing the land for planting we must bear in mind that the land should be fresh in chalk, otherwise the plants may die away with clubbed roots. When the cabbage plants are to be grown upon land which has been subjected to autumn and spring tillage, and when the ground is fine and loose, it is not easy to bury long dung unless it is ploughed in and buried in the stetch, as it will often lie about on the surface and not contribute its full benefit to the crop. If planting is done on the flat or level we prefer the application of artificial manures—4 or 5 cwt. of Peruvian guano and 2 cwt. of nitrate of soda per acre ploughed in just before planting will be none too much manure, as cabbages are very gross feeders; in fact during their growth we often sow 2 cwt. of nitrate between the rows before horse-hoeing, if we consider the crop requires it. The distance apart at which the plants should be set will require consideration, because the largest varieties, such as the Champion and Drumhead Savoy, will require more room than the early varieties of cabbage. We think the distance between the rows should be uniform—say 30 inches; and in proportion to the size of the cabbage when ripe so the distance should vary in the lines. The Enfield Market and Imperial kinds would do at 15 or 18 inches apart, but the Oxheart and Drumhead Savoy may be set at 2 feet, whereas the Robinson Champion sort may be set with advantage at 30 inches—that is, equidistant. In this case, if planted with regularity, the work of horse-hoeing may be effected both lengthways and crossways, which is a great advantage in keeping the land clean and well tilled at the least cost; in fact we have often known this large variety planted at 3 feet each way, which still further facilitates interculture.

We must now refer to the planting as a second crop. Our plan is as fast as a green crop, such as trifolium, rye, tares, &c., has been cleared away we have laid out some of the longest and strongest dung we may have, fresh pig dung or that from the bullock boxes being the best. When prepared to begin planting the dung is spread, and whilst ploughing is going on the dung is raked into every third or fourth furrow according to the distance required; and by placing a wisp of clean straw projecting out of the dunged furrow at each end of the field it becomes a guide to the planters, and by this means the plants are set immediately over the dung. Unless our plants are very small, young, and tender we always plant with the spade. In effecting this a man and woman are employed at each line, with a boy to bring plants for the woman. The man introduces the spade into the land a good depth, especially when the plants are large or long in the stem, and in the centre of the furrow. The spade, being inserted at an angle of about 45°, is then raised, which makes a free opening for inserting the root of the plant, and the woman holds the plant in position at the back of the spade until it is withdrawn, after which the man puts his foot on the soil over the root of the plant in the act of walking forward to set the next plant. This mode of planting we find best in the event of the soil being either very dry or rather too moist; for in the one case the dry dusty soil does not run in behind the spade as it does into the hole in planting with the setting stick, nor does the spade knead the land so much as the action of the setting stick does when the land is too damp. After the cutting of the early sorts of Cabbage planted in October the stumps may be left if sheep food is required, for the stumps will throw out numerous sprouts which furnish valuable food for sheep, and thus leaving a dressing of manure for the next crop. Still it must be remembered that Cabbage is a very exhausting crop, more so probably than any other root or vegetable crop in use for feeding stock; and when the heads are cut and removed for feeding sheep or cattle elsewhere, and it is proposed to take a cereal crop in succession, the land must be well manured either with yard dung or artificial manures.

WORK ON THE HOME FARM.

Horse Labour.—As there is still time to sow Swede seed when the crop is intended for late feeding in the spring, some horses will be engaged in ploughing, pressing, and preparing the land by harrowing, rolling, &c., where crops of rye, trifolium, &c., have been cleared off, either by sheep-folding or cutting up for soiling horses, cattle, and pigs. Should the weather prove favourable

for the work, drilling the seed should be done directly after the ploughing and pressing, and this will prove good management should the weather prove either wet or dry afterwards. We do not recommend the laying-out of yard manure or town dung because it takes time and delays the drilling of the seed; and in order to prevent delay, when we use artificial manure applied by the drill, we always like to have the manure mixed with ashes in the manure house or in the field and covered over the day before it is required for use. The dressing we apply for a late-sown Swede crop is 1½ cwt. of Peruvian guano and 4 cwt. of bone superphosphate per acre. Some horses will be now required for the mowing machine; and as it is heavy work, and should be continuous for a day of at least twelve hours, the horses should be relieved by a change at midday of two fresh animals; and these long days are rendered necessary, not only by the cost of the work both for manual as well as horse labour, but also by the importance of having the grass cut as quickly as possible, so that the hay may be all fit for carting as fast as the labour of the farm can be made to secure it in stack. We will suppose that by anticipating the use of the mowing machine, the tedding machine, the elevator for ricking, &c., have all been overhauled and put into proper repair and condition; but if not, the sooner this matter, even in the latest districts, is done the better, in order that no delay may arise at the busy and important period of hay-making.

Manual Labour.—In anticipation that straw will be required for thatching the haystacks, the men may be employed in drawing and piling it away in readiness for covering and securing the hay as soon as possible after the stacks are built. The preparation by drawing the straw may be continued when the weather is showery and fit for little else, as damp weather will assist the men in preparing straw for thatching. The hoeing and hilling of potatoes where late planted will be now continued, also the hoeing of mangolds. The last hoeing of spring beans may be completed; the earlier the better, as they will soon be too tall for the work. In the case of hoeing the root crops the horse-hoeing should be used alternately with the hand-hoeing, giving only a few days between, in order that the weeds may die off between the times of hoeing. In the hand labour of the farm piecework should prevail as much as possible, in order that the men may be encouraged to make long days; and when the weather is fine this is important, not only where labourers are scarce, but because it is only in fine weather that the greater portion of farm work can be done at all. The chief point is to give proper attention to the workmen to check them if the work is not properly and fairly executed; and when the work is well done we hold it is an advantage all round if the men have earned a double payment by working long days.

The shearing of sheep will now be going on, and in the southern counties far advanced; and it is of great importance that the fleece should be taken off in good time, because in very hot weather it is a great burden to the animals, often causing them to roll over on their backs and be cast. In fact the only safe plan is that the shepherd should look to the sheep as late as ten o'clock at night and see them again at daybreak. This was a constant rule with our shepherds for many years when we had valuable and show stock animals and were likely to be lost in this way, and we never hesitated to pay the shepherds extra for this attention. In the dairy districts the herdsmen will now have their hands employed by looking carefully to the weaned calves and see that they have dry pasture for night lodgings, and with a little cotton cake, or meal of beans or barley, in their troughs at evening. The dairy cows also in cheese-making districts will be in full profit, if profit it can be called at the present price cheese is making; it is now very little more than half the price it has sold at for some years past. This matter is beginning to tell upon the supply of milk to the metropolis and the large towns. In consequence of cheese-making having become a losing business many are giving it up and selling their dairy produce as milk, and thus depreciating its value; we are becoming so largely supplied with the produce of almost every kind from abroad as to seriously affect the produce of the grazing districts, whether it is butter, cheese, milk, pork, or beef, the only exceptions that we can notice at present being the articles of fat lamb and veal. The women on the farm should now be constantly employed, and the boys also, which is still more important; because "as the twig is bent so the tree's inclined," and if we neglect the boys they will be little use to us as farm servants when they become men. It is very difficult in some districts to obtain women for field work. It used to be a necessity with them to work on the farm, but now the labourers are better paid they care less about earning the extra money.

POULTRY FARMING.

We are constantly asked questions about poultry farming, and this not by idle inquirers, but by those who gravely wish to know our opinion as to the probable dividends which they might expect from so many hundred or thousand pounds invested in a poultry farm.

It is well at once to clear away the cobwebs of indefiniteness which hang about such terms, and so we always begin by asking, What do you mean by a poultry farm? Is it an establishment for rearing exhibition poultry, or one for producing poultry for the market on a large scale? Our inquirers as a rule are not quite sure in which sense they take it, but would be glad to set up on either principle if we would only be sufficiently encouraging. Much to the disappointment of one or two over-sanguine enthusiasts we have been obliged to throw cold water upon their wild schemes. The advice which we have privately given to various individuals may be useful to others if published, and so we will relate what to us seem the insuperable obstacles to the farming of exhibition poultry; and on the other hand, how far we believe any real profit may be expected from rearing poultry largely for the markets, and under what conditions.

There is a vague idea that some yards of exhibition poultry have been made lucrative hobbies. There is a certain amount of truth in this which without explanation may prove misleading. We have known a good deal about many of the yards which would probably be quoted as examples, and can confidently affirm that there are very few of them which, if the average of one year with another since their establishment were taken, would not be found to have been a positive loss to their owners. There are others, however, where this is not the case, and which have for years been self-supporting, or from which a margin to the good has remained after all expenses have been paid. In the same way the show gardens attached to some great houses are self-supporting—*i.e.*, the surplus produce sold from them covers the cost of their present maintenance. We would, however, point out one or two considerations which should tend to damp ardent expectations of profits from such a source.

1. There is a considerable amount of chance in the matter. Though some yards have proved successes, we could instance several which have been egregious failures, and over which hundreds of pounds have been wasted.

2. The most celebrated have hardly ever become so till after the lapse of some years, during which the cost of raising them to fame has been forgotten. Year after year, perhaps, fresh breeding stock has been procured at enormous prices with little good result, probably from ignorance of any principles on which to use it. At last persistence in the pursuit, and the gradual acquisition of knowledge how to use the good material in stock, has brought success.

3. Those yards which have turned out most profitable have not in any single instance, as far as we know, been started with the object of profit. Of course we here exclude all reference to dealing in poultry—*i.e.*, buying and selling again; we are simply alluding to the sale of surplus home-grown birds. They have had small beginnings, like most great things, and have originated as a hobby or a fancy. The fact that they have become profitable as well as amusing has probably resulted from some peculiarly favourable conditions. We have seen poultry scattered about beautiful grounds and paddocks—veritable Gardens of Eden for them, but the actual rent of which would be very costly. This is little thought of, as is the fact that it would be almost impossible to procure such positions for an establishment founded with commercial intentions. In other less favoured situations success is attributable to what we may call a positive fancying instinct in an owner or a servant. To such persons to observe the particular points in the parent birds which are best reproduced in the offspring, to watch every stage of the growth and development of the chickens, to tame and familiarise them with penning and handling, is a daily delight; but to give this constant attention, which to the born naturalist and fancier it is a relaxation to bestow on a few birds of a few kinds, to a vast number of nearly all the known breeds (for on such a scale alone could the breeding of high-class poultry ever be made profitable) would not only be an intolerable weariness, it would be an impossibility. Take the most celebrated yards and observe their produce in any one given year, and it will be found that the specimens which have made its name and fame through the season have been but few, and that these have each individually received special care and attention.

These considerations are, we think, sufficiently cogent to prevent anyone rashly setting up an establishment for breeding prize poultry under the idea of making gain thereby. Over and above these, however, there is a still broader and more obvious reason against it. It is one of the first principles of political economy that the value of every commodity varies according as the supply of it falls short of or exceeds the demand. If the whole country were full of highly bred poultry the demand would naturally be exceeded by the supply, and its value would become extremely small. This principle is often forgotten or not understood, and people think that any production which has proved remunerative on a small scale must necessarily turn out proportionately more so if carried on in a large way. For many years now there has been an increasing appreciation of the worth of highly bred stock. Intelligence in any avocation or trade merits and commands its reward as well as actual labour; and so the clever breeders of Shorthorns and Southdowns who were the first to produce improved strains have very properly reaped a considerable harvest from their superior skill and intelligence. In like manner the poultry yards which have become paying ones have been those in

which great care and observation have led to the production of particularly useful races, from which the many buy for the improvement of their stocks. It may be thought that the major portion of the purchasers of prize poultry invest simply for fancy's sake—*i.e.*, for the pleasure of possessing beautiful birds, or for the much-coveted honour of winning a prize or a silver cup, and not for the real improvement of their breeds as useful stock. Such fancies are apt, however, to be ephemeral, and must to a certain extent depend upon the superfluous wealth of the buying classes.

We have of late heard many complaints from those who formerly sold their superfluous stock at high prices, that even the poultry yard has been most injuriously affected by the present depression of trade. We are strongly inclined to believe that were the account books of those who sell most birds analysed, it would be found that the receipts are chiefly due, not to the few who buy at exorbitant prices for fancy's sake, but to the many who buy from a mixture of two reasons—viz., a general desire to have something at once more useful and more beautiful in their yards. Of course, according to the law of demand and supply which we have already mentioned, as highly bred poultry becomes more common and more generally distributed over the country, the demand for it will become less and its value less.

These are broadly the reasons which have led us to discourage all attempts at farming high-class poultry. In another article we will give our ideas upon the chances of making the production of poultry for the market on a large scale a profitable occupation.

In the third line from the top of the article on Dorking chickens (page 449), for "amber" read "umber."—C.

VARIETIES.

We have received the rules of the Winchester Society for the Exhibition of poultry, pigeons, cage birds, dogs, cats, flowers, fruits, &c.—a truly comprehensive Society in its aims, and apparently an admirably constituted one. The Show which was held at Winchester last summer seems to have been such a success that this Society has been formed for the promotion of such shows as a regular institution. The next will be held on July 9th and 10th. Schedules can be had from the Hon. Sec., at 8, Great Minster Street, Winchester.

—— It may interest our apiarian readers to learn that the three Judges appointed to adjudge the prizes for bees, hives, honey, and for the competition in driving bees and capturing the queen, at the great show at Kilburn are Rev. George Raynor, Hazeleigh Rectory, Maldon, Essex; T. W. Cowan, Esq., Horsham, Sussex; Thomas Carr, Esq., Newton Heath, Manchester.

—— At the Committee meeting of British Bee-keepers' Association, held June 11th, present Mr. T. W. Cowan in the chair, Rev. E. Bartrum, Messrs. F. Cheshire, J. Hooker, J. Hunter, and Jackson, and Rev. Herbert Peel, Hon. Sec., it was stated that the balance in hand was £125 4*s.* 2*d.* The gentlemen who had consented to act as Judges at the Show at South Kensington were appointed to the several classes. A conversazione for the evening of July 22nd (the first day of the Show) was arranged, the subject for the paper and discussion to be "The Plants and Flowers most worthy of Cultivation as Honey Producers." The necessary steps were taken for securing an attractive exhibition of manipulations with live bees, while an encouraging proof of the general appreciation of these exhibitions was given, in that the bee tent used on these occasions, together with the one fraternally lent by the Hertfordshire Association whenever pressure had been felt have been inadequate to supply all demands, so that funds were voted for providing further resources in this direction.—F. C.

—— Since American produce is such an important factor in the food supply required by this country, the following extract from the *Rural New Yorker* relative to the crops in America becomes interesting. "The latest information from different parts of the country gives assurance of heavy crops everywhere. From all sides confidence is now expressed of an unusually fine harvest. The accounts from Ohio, Indiana, Illinois, Minnesota, Dakota, Iowa, Kansas, and Nebraska indicate a large increase in the production of cereals. Throughout the great wheat region the acreage under wheat is considerably larger than last year, owing to the new land taken up and cultivated, and because the dryness of the early part of the season enabled farmers to plough land not tillable in a wet spring. Spring wheat, as a rule, looks well, but the production of this sort is yearly diminishing. The corn crop will be larger this year than ever before, according to present estimates. Here and there fruit has been somewhat injured by late frosts, but on the whole a heavy yield is confidently expected. The reports with regard to barley and oats promise heavy crops. The welcome rains have given the grass a fine start, and the fears entertained early in the season of a short hay crop are now replaced by high hopes of an unusually abundant one."

COMB FOUNDATION.

I thought I was doing right last year when I ordered foundation of Mr. Rait in white or semi-bleached wax. Since then I have had ample opportunity of testing the value of that made from semi-bleached wax as against that made from pure yellow wax. I fear the bleaching process must greatly harden the wax and render it less susceptible of being worked by the bees, for I find it takes a much longer time to work a sheet of the white than a sheet of the same size of the yellow. Anything that saves times to bees is a saving of money to ourselves, so I want no more white foundation in my brood combs, only pure yellow. Another advantage I find is this: Whereas I could hardly handle the white without breaking it, the pure yellow is tough and pliable, not brittle. This is a most decided advantage I consider, for the bee-keeper wants to fix in his foundation as rapidly as possible, and anything that causes him loss of time may turn him from the use of that which is a boon. Let him therefore use foundation made of pure yellow wax tough and pliable: but if he have a supply of white already he can avoid brittleness while working it into his frames by adopting the simple plan of placing the sheets in the sun or near a fire for a time, not, however, allowing them to become inconveniently soft.

Many like myself have had a good deal to learn, and many perhaps fell into the same error as I did, and only half filled their frames with foundation, expecting the bees to complete the comb down to the bottom bar. Of the frames so filled, in nine cases out of ten I found the bees satisfied to let well alone, and did not add to the depth of foundation at all; others added enough in the central portion of frame sufficient to form the necessary circular space for the cluster to well cover and for the queen to lay in, leaving the sides unworked; others, again, added comb, but it generally proved to be of drone size. I had many frames I felt loth to destroy, and yet was not satisfied that they were of real value to me this spring. One day I was looking them over previously to sulphuring against moths. I had recently read a letter from that able bee-keeper Charles Dadant of Hamilton, Illinois, in the "Bulletin de la Société d'Apiculture de la Gironde," of which Society I have the honour to be a member, and therein he relates how he and his son for twelve years past have every year gone over all their combs, cutting out every drone cell and replacing by worker, and this upon a stock of combs in use with five hundred hives speaks volumes. His words are, "My son and myself do not differ upon the point of seeing the profit to be gained by replacing the drone cells by worker cells or by pieces of worker-size artificial comb. We have used last year upwards of 330 lbs. of the latter." I determined to set to work and endeavour to patch with foundation those combs that did not please me. I first experimented on a few to find the best way to do it. Those done I placed in a strong colony to find next day a complete success—the foundation worked out, the sheet of comb complete, and except for difference of colour in parts no one could tell it was not all built the same time. This decided me, and I treated all my imperfect combs so, thus saving every moment the bees would spend upon each cell so saved as well as honey consumed to form the wax.

I will now proceed to tell you my mode of working. With a sharp penknife I pare away about an inch of the cells on one side the comb until I lay bare the median wall, where it is advisable to make the patch, cutting the edge straight, or at an angle as the special circumstances of each patch demand. I next cut my pieces of foundation to fill the hole, the corner, or along the bottom edge as it may be. I have by me a spirit lamp or small charcoal fire, and I heat the edges of each piece of foundation and smartly apply them to the proper spot they are to occupy. The finger and thumb applied with a rapid but varying pressure will securely fasten the foundation in the desired places. If proper care be used, not even the cells on the side opposite to those cut away need be injured. No gum nor glue is needed; simply heat the wax to the proper point.

The weather has been so extremely variable that it has been difficult to obtain any precise data of the time occupied to work out foundation. During one spell of heat I had a very weak hive work out completely in twenty-four hours two full frames of yellow wax measuring 7 by 7½ inches, and they were in great part filled with eggs, showing how ready the queen may be to set eggs if her subjects would or could only supply the requisite cells. On another occasion I placed two frames 18 by 7½ inches in the only strong swarm I have had as yet, at three o'clock in the afternoon. Next day at noon—twenty-one hours—I opened the hive. One frame was completely worked out, and one side was nearly full of eggs, her majesty visible very quickly and busy setting eggs. The other frame was three-quarters depth worked out on one side, and half depth on the other.

There is a bee-keeper here, an entirely self-taught man, with keen powers of observation, but who never reads a book or journal, and consequently enunciates his observations with all the force of a man who believes he is communicating to the world new and important discoveries. This man asserted that there were five distinct varieties of bees here. Doubting his assertion I paid him a visit some time ago, and asked him to point me out the varieties. In his apiary of two hundred hives he could only show me what he termed three varieties. No. 1 I dismissed at once, they being only the very old and robber bees, a shining black colour, and totally devoid of hair. No. 2, fine large bees—the ordinary North-African type. No. 3, small bees, extremely irascible. Upon

examining No. 3 closely I found the very same features as No. 2, excepting size and temper. Inquiring further I found No. 2 was born of an 1878 swarm lodged in freshly-built combs. No. 3—ah, well! He was not sure of the age of the hive, or how many years he had had it. I found the combs black with age, and the box itself dropping to pieces from rottenness. I formed the conclusion that No. 3 is simply No. 2, but produced in cells that contain the cast-off cocoons of generations of bees dead and gone, and thereby so reduced in size as to be absolutely unfit for the production of a fully developed bee.

One of the most advanced and scientific bee-keepers France possesses told me he had divided asunder under the microscope, and counted as many as sixty cocoons in one cell. Now I am positive, my non-reading friends, No. 3 variety would absolutely disappear if he were to go in for foundation. Amongst hives I have purchased from the Arabs I have had the same tiny highly irascible bees, but I have bred them all out, and my bees are all of large size. For brood-raising I would prefer never to use a comb over two years old, but keep such for honey storing and extracting only. I have noted carefully the effect produced on a swarm lodged (No. 1) in ready-built combs as compared to that produced when lodged (No. 2) in a hive, each frame alternately ready-built comb and foundation, or foundation alone. In the case of No. 1 the bees gorged with honey simply unload, and then loaf around for some time. They seem in one another's way, and appear a little puzzled as if all was not right to walk into a house completely furnished. With No. 2 it is different; there is a vacuum, horrible to bees, must be filled up. The sweets they carried away with them to utilise in wax-building are now in part utilised, in part stored. "Lucky find, that of wax ready to our hand!" they seem to say; "now to work to transform it into cells!" And as the vast number spread over a sheet of foundation dig away, and the product of their labour grows, their activity, and the heat thereby evolved, acts upon the queen, and her laying for the first few days is thereby greatly increased.

It appears to me to be the most natural for a swarm to have even the semblance of wax-building to do when it locates; and reasoning in this manner I am led to think that if our transatlantic cousins succeed in giving us complete artificial combs I would use them for a honey glut, but with a swarm I would give every alternate frame of the cell-wall commenced foundation as supplied me by Mr. Raitt. In the case of a swarm lodged in alternate perfect comb and foundation I have found the queen mostly upon the foundation, as if her instinct prompted her to use the fresh new comb in preference to that each cell of which might be reduced in size by the old cocoons. Is it that she knows that to produce a perfect fully-developed bee the cell should be of the largest size Nature has taught the bee to build (each of its kind—worker and drone)? I think so; and rank as one of the advantages of foundation the keeping the size of your bees up to the full standard.—ARTHUR TODD, *Algeria.*

FOUL BROOD.

THOUGH foul brood is a disease amongst bees common and well known, its cause and nature remain undiscovered. The most thoughtful and observant of experienced apiarians say very little about it, because they can give no satisfactory explanation or information as to the cause, nature, and spread of this terrible distemper. Brood diseased and decaying in hives becomes a great pest to the bees and paralyses all their activities. The presence of this disease is most discouraging to bees, and puts an end to all prosperity. Sometimes the stench of the decayed brood drives the bees out of their hives and makes them cluster and build fresh combs outside, and sometimes they wholly abandon their hives and go off as swarms. All this is well known, but of the mystery of the producing cause as well as the nature of the disease we have no knowledge. Notwithstanding all that has been written and published touching the question of foul brood the most advanced apiarians stand on a platform of equality with the least informed, and say "We have no knowledge;" and all will readily admit that this disease is incurable.

Some two months ago I visited an apiary five miles distant from this place containing eight stocks. On turning them up one by one for examination I found a swarm of last year much diseased, and told the owner, who was by my side. The hive was strong in bees, with two or three pieces of brood about the size of a man's hand much diseased. The gentleman asked me to do what I could to save the hive. The two or three pieces of diseased brood were cut clean out of the hive, and pieces of empty clean comb from the sides of the hive were cut out and fitted into the openings made by the removal of the foul brood. Some three weeks ago the gentleman called here and said the hive has been doing well since. Yesterday I smelt the disease in one of my own hives—a stock that swarmed last year. In this case the bees will be removed from the hive and united to a queenless stock now in a weakly condition, for practically speaking the removal of the bees from diseased combs is better and safer than the removal of the diseased parts from the rest of the combs.

More than one writer has asserted that the honey of diseased hives given to the bees of the other hives carries the distemper wherever it goes. Such assertions are generally unsupported by facts. We are yet unconvinced that the infection is carried from hive to hive by the bees in the honey they eat. We have known swarms leave the disease behind them and thrive well in new hives. We have seen healthy sweet combs outside and attached to the board of a hive full of foul brood. We have never known swarms from diseased hives carry the disease or germs of the disease with them. If other bee-keepers have known instances of the infection being carried from hive to hive in the honey eaten we shall be pleased if they favour us with an account of their experience. Foul brood is a great scourge in an apiary, and is no respecter of hives or systems of management. It attacks the old and the young, the strong and the weak. It is always aggressive, and never recedes or relaxes its grip, but causes devastation and ruin wherever it goes.—A. PETTIGREW.

OUR LETTER BOX.

EGGS FOR SETTING (*Constant Reader*).—We are unable to supply you with the information you require. Eggs from pure stocks of fancy breeds are necessarily much more expensive than those of ordinary fowls. It is better to pay a good price for what is known to be true than to run the risk of disappointment by availing yourself of any "cheap offers" that may come under your notice.

PRESERVING EGGS (*Subscriber*).—We have not had experience on the point you mention, having had no difficulty in preserving eggs collected in the usual manner. Possibly there may be "something in" the cottager's observations, and you might test the matter for yourself.

STEWARTON HIVE (*E. S.*).—1, Put on your super as soon as you observe the other boxes pretty full of sealed honeycomb, or earlier if the bees want room. 2, To prevent brood comb you must keep out the queen, which can only be done by having the passages communicating with the hives and supers so narrow as to prevent her passing. This will of course keep out drones also. 3, When the boxes are full carry them away and shut the bees up in a dark place for an hour or so, taking care to give them sufficient ventilation; then bring them out into the open air, and agitate them by gentle knocking and blowing smoke among them. 4, You can only leave the box alone, or else transfer them after a temporary removal of the bees.

HONEY FROM SUPERED SWARMS (*A Young Beginner*).—Certainly it is possible in good seasons to get honey in supers from swarms. In your case we would cut a hole neatly in the crown of the straw hive about 2 inches across, and put a cap on as soon as the bees show want of room, or honey begins to abound. Ants are got rid of by pouring diluted petroleum from time to time over and about their nests.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. June.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 11	30.017	60.0	57.0	S.E.	55.1	67.4	46.3	95.9	44.3	0.322
Th. 12	29.981	59.4	53.5	S.W.	54.8	65.3	48.9	116.7	44.1	0.040
Fri. 13	30.097	61.6	56.0	W.	55.0	69.7	51.0	126.0	47.2	0.012
Sat. 14	30.133	58.0	56.0	N.	56.2	74.0	50.4	126.2	45.6	0.209
Sun 15	29.906	60.0	57.4	S.	57.3	66.8	57.3	90.7	56.6	0.069
Mo. 16	29.554	59.3	58.0	N.E.	57.2	68.6	56.6	117.4	53.6	0.143
Tu. 17	29.537	61.3	56.5	S.	57.1	69.6	52.4	131.6	50.0	—
Means	29.889	60.0	56.8		56.1	68.8	51.8	114.9	48.6	0.735

REMARKS.

11th.—Dull gloomy morning; rain commenced at 9 A.M. and continued steadily until 3 P.M., heavy shower 4.50 P.M.; fine evening.

12th.—Fair day, with few slight showers.

13th.—Dull morning; fair and brighter in afternoon; rain about 8 P.M.

14th.—Hazy morning; fine day, but at intervals very cloudy and stormy-looking; slight rain 10 P.M.

15th.—Rainy morning and very close; fine afternoon; beautiful clear calm evening.

16th.—Very wet morning, cleared off by noon; fine bright afternoon and evening.

17th.—Very fine, warm, bright day.

Cloudy week with frequent rains. Temperature very near the average.—G. J. SYMONS.

COVENT GARDEN MARKET.—JUNE 18.

BUSINESS has been brisk, with prices unaltered with the exception of Pines, the absence of St. Michael's fruit causing a good sale for home-grown stuff.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples	½ sieve	5	0	to 6	0	Melons	each	10	0	to 15	0
Apricots	box	2	0	3	6	Nectarines	dozen	12	0	24	0
Cherries	box	2	0	3	6	Oranges	℔ 100	4	0	12	0
Chestnuts	bushel	12	0	16	0	Peaches	dozen	12	0	30	0
Currants	½ sieve	0	0	0	0	Pears, kitchen	dozen	0	0	0	0
Black	½ sieve	0	0	0	0	dessert	dozen	0	0	0	0
Figs	dozen	12	0	18	0	Pine Apples	℔	3	0	5	0
Filberts	℔	0	9	1	0	Plums	½ sieve	0	0	0	0
Cobs	℔	0	9	1	0	Raspberries	℔	0	0	0	0
Gooseberries	quart	0	6	1	0	Strawberries	℔	4	0	10	0
Grapes, hothouse	℔	3	0	8	0	Walnuts	bushel	0	0	0	0
Lemons	℔ 100	4	0	8	0	ditto	℔ 100	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 26—JULY 2, 1879.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
26	TH	Richmond Hort. Soc.'s Show. Brockham and Maid-	74.3	49.2	61.7	3 46	8 19	11 a 28	11 11	7	2 29	177
27	F	Scottish Pansy Society—Edinburgh. [stone—Roses.	72.8	48.2	60.5	3 46	8 19	0 50	11 27	☽	2 42	178
28	S	National Rose Society—Crystal Palace.	73.7	49.1	61.4	3 47	8 19	2 14	11 48	9	2 54	179
29	SUN	3 SUNDAY AFTER TRINITY.	73.2	48.5	60.8	3 47	8 19	3 41	morn.	10	3 6	180
30	M	Royal Agricultural Society—Exhibition at Kilburn.	75.1	48.3	60.7	3 48	8 18	5 8	0 14	11	3 18	181
1	TU	Horsham and Torquay Rose Shows.	74.8	50.8	62.8	3 49	8 18	6 28	0 50	12	3 30	182
2	W	Royal Botanic Society—Evening Fête. Hereford [Rose Show.	73.4	51.2	62.3	3 49	8 18	7 34	1 40	13	3 42	183

From observations taken near London during forty-three years, the average day temperature of the week is 73.6°; and its night temperature 49.3°.

IRISES.

I DO not know any flower, or at all events any herbaceous plant, which has been so neglected as the beautiful Iris; and at the same time I do not know any plant which will better repay cultivation. If any readers of this paper doubt me let them go to the nearest nursery where the Iris is grown and see for themselves the gorgeous display of colour and exquisite shading, and many, I think, will resolve to grow the Iris. How it is that I have been ignorant of the beauty and the marvellous variety of these flowers for all these years I do not know, but I have the melancholy satisfaction of knowing that I am but one of a large multitude, and I will try and redeem the time by growing them largely.

Having an extensive collection of Irises I have been studying and working at them ever since my Roses so disappointed me, and I think that these plants will find a soil congenial to them which the Roses found fatal. The Irises are classed in two great divisions—the Bulbous Irises and the Tuberous-rooted Irises. I believe Mr. Baker would say that the bulbous Iris is not an Iris at all, but a Xiphium. But let this pass, as in the common nomenclature the Xiphium is an Iris.

The bulbous Irises are numerous, some blooming the earliest of all, others the latest. The first to bloom is Xiphium Histrio. I gave half a guinea for one bulb, and it has decayed below the ground. The next to bloom is Iris (Xiphium) reticulata: early in February the beds are gay with this flower. It is purple in colour, with blotches or spots of gold inside the throat. After this, still keeping to the bulbous family, we have Iris persica. This is a gem, a delicate white Orchid-like flower, just peeping above the snow in February and March; the height of the plant not above 6 inches at the most. After I. persica we have Iris caucasica, with flowers of the most delicate primrose tint margined with silver.

We must now in following the order of succession in blooming leave the bulbous division and come to the tuberous. This includes many species and varieties, all of which are interesting, but perhaps the least so is the one which next furnishes us with flowers, and that is the dwarf Iris. The principal is I. pumila, with its numerous varieties; the best being bicolor, cærulea, maculata, and tristis lutea. I freely own that these flowers disappointed me, and I have since been told that a certain member of my family, who does not generally hesitate to speak her mind, had to exercise considerable restraint over herself on the occasion of my bringing in a bloom of tristis lutea (very *tristis* indeed it was), for she observed, "Well, if this is the kind of flower that such a fuss has been made about, and such expense has been incurred, I don't think much of it." The plants are very dwarf, and the flowers are on very short stalks, so that it is difficult to cut one large enough for a specimen glass. After I. pumila, I. obbensis comes into bloom, of which the variety Lutea grandiflora is perhaps the best. The ground colour of the standard is yellow, with greenish yellow falls.

When these are over Irises of the Barbata section, the noblest of all the tuberous division, commence blooming. These spring from the old Iris germanica, and in some catalogues they are still called by the parent's name. Mr. Baker has, however, classified them in groups, and as this paper is intended to instruct those who may take the trouble to read, perhaps I shall not err in mentioning their names and peculiarities or distinctive features. The first is I. aphylla, the varieties of which have white standards. These to me are the most beautiful of all. Imagine fine plants with striking reed-like foliage having stalks about 2 to 3 feet high, at the end of which are large flowers with pure white standards, while their falls are generally of the same colour margined with white or lavender! If these flowers could but be produced by Easter they would command a fabulous price for church decoration. I can imagine nothing more beautiful for altar vases than these superb blooms, and in a favourable season these blooms will be out in time for what our country people still call "*White* Sunday."

Next is the Iris amœna group, and a beautiful name Mr. Baker has chosen for this group; for could anything be more amœna than Alice Barr, Donna Maria, and other varieties, the pure white blooms of which glisten in the sunlight, and in the soft evening light stand out like silver lamps? The standards are throughout white, but the falls are of various colours from white to crimson.

We now come to I. neglecta, and if the whole family had been called by this reproachful name Mr. Baker would have administered a much-needed reproof. The varieties of neglecta have flowers for the most part of lavender or purplish blue, but the falls vary in the most charming manner and comprise hues of every kind. I. pallida, which comes next, belies its name; for the standards are of a darker colour, sometimes reddish purple or claret red, and often of mauve or deep lavender.

We now come to one of the most beautiful groups of the family—I. squalens and varieties. Here we have standards of nearly every conceivable colour, but for the most part of deeper shades; some are primrose bronze, others bronze flaked crimson. Lastly, we have the Iris variegata group. Here the standards are for the most part various shades of yellow, the falls being white or velvety crimson. These are magnificent flowers, and too much cannot be said in their praise. Besides these there are a few solitary specimens which are very interesting. Particularly good is I. flavescens—this has standards of the most delicate primrose, and falls of a still lighter shade; I. albicans, which is the purest white of all; I. kashmeriana, a very valuable and high-priced variety, which is the largest of all, the standards and falls pure white.

All the barbata section are exceedingly sweet; the perfume is more exquisite in my judgment than any flower I know. I may perhaps explain that the word barbata signifies bearded, so that each one of these flowers has a beard which lines the mouth of the fall. I hope in a future article to give some of the best varieties in each section; those I have already mentioned have all bloomed here.

After the barbata or bearded Iris we come to the beardless

section of the Flag Iris. The first to bloom is I. sibirica, with its numerous progeny. The flowers are smaller than the bearded section, but are exceedingly graceful. I. aurea and I. ibirica, which are considered the two best, the former being valuable I have had the misfortune to lose; in fact all the high-priced ones which I purchased have repaid and rebuked my extravagance by dying. I. Susiana major, also a high-priced variety, is very beautiful, and others, which are too numerous to mention, are very fine. When the beardless section are nearly over we bid adieu to the tuberous division, and the Spanish Irises, or small bulbous Irises of Spain, take up the succession.

These are grand in the extreme and embrace nearly all colours, and have also the merit of being exceedingly cheap; they can be bought for 3*d.* each, and are the most decorative flowers that can be imagined. There are many varieties of these lovely flowers, and each year we add to the number. The last to bloom are the English or large bulbous Iris; these bloom about a fortnight after the Spanish, and are larger in size. In colour they range from crimson black to pure white.

I have lastly to refer to the lovely Iris Kæmpferi. These come from Japan, and are called Japanese Flag Irises. They are very difficult to grow, so far as my experience goes; and they suffer very much from severe weather. I have lost a great number, and as many of them are 5*s.* 6*d.* and 7*s.* 6*d.* each the loss is serious. They will not do well in ordinary soil, but require peat and leaf soil. They require much care during the summer. Liquid manure should be frequently applied to them, and great patience should be brought to bear, for they hardly ever bloom till well established; and this requires at least a couple of seasons. The flowers are very beautiful, and may be described as somewhat partaking of the Clematis, being often 5 or 6 inches in diameter. At present I know of thirty-eight varieties, but I have also a great number of seedlings which may turn out well, as they come from Max Leichtlin, Esq., of Baden Baden.

Now I have completed the list of species I must say a few words upon a bed which I have formed in my churchyard, and which I should be very glad to show to any of your readers, particularly to my kind friend at Bristol who wrote so very pleasantly about my place under the title "Sunny Memories." He, I think, will be pleased to know that I have followed out his suggestion to the best of my power.

I have a large wide bed bounded by a Box hedge, and further protected by a plantation on the other side of the road. The bed faces east, and great care has been taken to get suitable soil. The rhizomatous or tuberous Irises are planted in lines 3 feet apart, between which are herbaceous Asters, Phlox, and Pyrethrums; then come the bulbous Irises, between which are Potentillas and Delphiniums. The bed runs the whole length of the churchyard, and the plants are just coming into bloom; and although the Irises are rather small, the flowers hitherto have been very fine. The bed is heavily mulched, four loads of rich manure being expended on it, and the plants are growing well. We have had nothing but rain for weeks, and the manure is being well washed in, so that if we do ever have any fine hot weather this summer I really think this bed will be a thing of beauty and a joy for at least a few weeks.

Will anyone who reads this kindly let me know where I can procure peat at a reasonable rate? My station is Axminster on the South-Western Railway, and I know of no nearer place than Woking, the carriage from which place would be enormous.

I hope that some of the great societies will encourage the cultivation of these glorious flowers by including them in their prize schedules. I will conclude by adding one great advantage which I have omitted to describe. These flowers may be cut when the spikes have not opened and only the flower blooms are coloured, and they will open in water as well as in the sun, so that they may be safely sent by post or in hampers, and some poor patients tossing their feverish limbs on a bed of pain in the hospital or crowded courts of London may be cheered by seeing the spikes open their gorgeous blooms before their eyes. What greater thing can be said in their favour? at least by a—WYLD SAVAGE.

JAPANESE AND CHINESE PLANTS.—Have any of your readers noticed that many of the Japanese and Chinese plants have grown and are flowering much more strongly and with larger flowers this year than usual? I can only suppose that the last hard winter, which has been so destructive to many plants, has just suited them; probably it has been of the same character as their own native winters. Dielytra spectabilis in my garden is 4 feet high, with longer and larger stems of bloom. Spiræa japonica I never had before so full of strong bloom stems. Dianthus Heddewigii has stood the winter uninjured, and is coming (14th of June) strongly in growth and in flower. The Tree Pæony, Primula japonica, and Weigela rosea are also unusually fine. Perhaps some of your readers will be able to add the names of other Chinese and Japanese plants which they have proved to have passed the ordeal of last winter.—G. O. S.

[The result alluded to is due in a great measure to the absence of frosts during the early growth of the plants this spring.—EDS.]

THE SUMMER TREATMENT OF THE GRAPE VINE

JUNE, July, and August are always busy and anxious months for the Grape-grower. Thinning late Grapes, pinching and training the shoots of all Vines, watering the roots, keeping insects down, and trying to get crops to finish off perfectly, are a few of the main points in summer Vine culture which will require much care and attention for some time to come. After securing a good and free growth perhaps the most important thing in summer is to keep the Vines clean and free from insects. Even Vines of very inferior growth if kept clean stand a good chance of improving for another year. Dry hot weather is generally considered to induce the increase of many insects, and if this be true most Vines should be pretty clean this season as yet, and if hot sunny weather does come every possible means should be taken to ward off the insects. But I do not think it is hot weather alone which causes so many insects, as Vines are often covered with them in the coldest weather, while in other instances we have found the Vines perfectly clean in the hottest part of the year.

Under generous and proper treatment Vines may be kept quite free from insects at all times, and that, too, without more trouble than is necessary to keep the Vines in health. I am assuming the Vines to have been thoroughly cleansed when at rest in winter, and free from all insects when they were started into growth, as all Vines ought to be. Under these circumstances the best mode of protecting them from insects is to keep the borders well watered, which means that they must never be too wet nor too dry, but the latter must be especially avoided. While applying abundance of water to the roots, clean water only need be given to new or rich borders, but old poor soil cannot have too much liquid manure from the time the fruit is formed until it is half ripe—that prepared from cow and pig manure is good; of artificials guano is, perhaps, the best, and potash and superphosphate may both be used with great advantage, mixing them at the rate of 1 oz. to the gallon of water, or a little weaker but no stronger.

It is also of much importance that the atmosphere of vineries be kept pure and sweet to successfully combat with insects. Frequent syringing is not the only, nor do I think the best, way of keeping the Vines clean. I do not think our Vines were ever so free from insects at this season of the year as they are at the present time, and they have never had less syringing. In fact, since the fruit was formed they have never been syringed at all, but we always keep the floors, the surface of the borders, and pathways clean and moist, and two or three times a week a little guano water or liquid manure is thrown about the surface, and this seems to have a successful effect in keeping the leaves clean. At the same time it is well always to keep a look-out, and whenever there is the slightest appearance of red spider, thrips, bug, or green fly sponge the affected part at once with either clean water or water in which Gishurst compound has been dissolved at the rate of 1 oz. to the gallon. In cases where the Vines have been so neglected (or from other causes), that they are already covered with insects I water the border at once, and if the Grapes are not too ripe give the foliage a thorough washing through the syringe or garden engine, with clean water if the Grapes are colouring, but if they are green the water may be mixed with Gishurst or tobacco water, or failing these a little soft-soap water may be employed, but the leaves must be washed with clean water after it has been on about half an hour, as if left to dry the fruit may be discoloured.

Vines in a healthy state generally make much young wood from the time the fruit is thinned until it begins to colour, and during that time they should be looked over once every

eight or ten days, when all growths should be stopped at the same place as they were at first, or at most one leaf further on. It is much better to stop them frequently than to allow them to grow for, say, a month, and then cut the whole of the shoots off yards in length. This gives the Vines a severe check, and we have sometimes thought it stopped the fruit from swelling for a time.

After the fruit begins to colour some growers object to remove any more of the shoots, and this plan—especially as it is recommended and practised by such good Grape-growers as Mr. Gilbert of Burghley—is no doubt correct, more particularly with Vines inclined to be weak, but it is often necessary to restrict the growths of strong healthy Vines after the fruit begins to colour, and very often after it is quite ripe. But at these times the shoots need not be stopped so closely as before. A foot or so of young wood may be allowed to form at the end of each old shoot, but we do not approve of allowing all shoots to grow until they are turned and twisted into a perfect mat as is sometimes the case. In the case of a damp autumn such a state of matters on late Vines would retain too much moisture and cause the fruit to decay. When the fruit is rather late it is often an advantage to allow some exposure to the sun to mature the fruit and ensure its keeping during the winter, but allowing the shoots to ramble at will has a tendency to obstruct this.

Young Vines planted last year and this year will now be growing rapidly, and it will be well for their future well-being if nothing is allowed to hinder their free and perfect development; watering the roots and training the growths are their chief requirements. The main growths should never be allowed to be smothered with a lot of small twigs, which will never be of any permanent benefit.

During the latter part of June, and through July, August, and September, it is seldom necessary, unless the weather is bad, to apply artificial heat to vineries, as it is generally found that the Vines and Grapes do much better without it; and taking into consideration the saving in fuel this affords, it is an advantage in more ways than one. The finest Grapes we have are just beginning to stone, and they have had no fire heat applied to them for over a month past, and I am certain they look none the worse.

Admitting air to the vineries in hot weather should not be the haphazard undertaking it is often made. Opening the ventilators widely in the morning, and allowing them to remain so let the weather come as it may, is not the mode to grow high-class Grapes; neither is allowing the heat to rise to 90° or 100° before opening the lights, but a gradual opening and closing according to the weather is the most preferable course. In hot days no Grapes can have too much air admitted to them. When they are colouring, each ventilator may be left an inch or two open during the night, and after the Grapes are ripe this opening may be increased.

In very hot weather when the berries are swelling rapidly or becoming ripe some of them frequently split. We have seen whole bunches of Golden Champion spoiled in this way, but all damage of this kind may generally be prevented by cutting the shoot half through between the bunch and the main stem so as to decrease the flow of sap.—A KITCHEN GARDENER.

TRANSPLANTING CAMELLIAS.

IN reply to "SURREY," we advise the operation to be carried out after growth is completed. It would be difficult to name any month, as the time for lifting very much depends upon the growth of the plants and the varieties, as some naturally under the same treatment complete their growth earlier than others. When lifted, either in the spring when the young shoots are advancing apace, or while the leaves are soft and tender during the growing season, much injury is done both to the foliage and the plants, and the check impedes the rapid progress of the young shoots. When lifted after growth is completed and the flower buds begin to form the roots are still active, and the plants soon take to the new soil. Care must be taken that the plants are lifted with good balls. It would be best to lift this year if practicable as soon as growth is completed, and allow the plants to get established in pots and tubs, especially if they have to be conveyed to a distance; and when turned out in their new quarters they will, when the growing season arrives, start freely into growth. The work of lifting should commence as soon as the buds are set, and before they swell to any considerable size. After the shrubs have been moved—whether into tubs, pots, or planted out—the syringe should be freely used, not allowing the foliage to become dry for ten days or a fortnight. Shade should also be employed if the sun is warm, and the house should be kept close until root-action has again commenced; the moisture must then be somewhat reduced and more air admitted to prevent the plants making a second growth.

We will now allude to a gigantic evil which is so commonly practised after potting or lifting—that is, watering to "settle the soil;" let the soil be in a proper state for moisture when the shrubs are transplanted, and if the syringe is freely used no water will be necessary at the root for perhaps a fortnight. The roots will in the time named recover from the damage received, and have commenced making new fibres instead of being soddened, which only helps to rot the roots where they have received damage.

If these directions are carefully carried out the result will be that only a very small per-centage of flower buds will fall, provided the after-treatment as to heat and moisture are such as the Camellias require. The following season's growth after lifting we have seen vigorous and fine.

The soil most suitable for Camellias is rich fibry loam, and plenty of coarse sand to make it porous; charcoal is also good to mix with the loam, as it helps to keep it sweet and open. We strongly recommend that no manure be incorporated with the loam; it decomposes too quickly, and only assists to sour the soil and decompose the fibre of the loam. If additional nutriment is required it is best given in a liquid state from cow dung or soot water, or both mixed together. In preparing the border, if intended to be permanent for a number of years, we advise that a few half-inch bones be mixed with the loam. One more point in preparing the border we might allude to—that is, dividing the space with brick partitions so that one or two plants could be lifted, should it be needed, at a future date without disturbing the roots of the others. —WILLIAM BARDNEY.

STRAWBERRY FORCING.

THE present season has been exceptionally bad for the forcing of Strawberries, but considering the absence of sun they have done very fairly, at least with us; in fact, I have never seen them better. The present season has been one to prove which is the best forcing variety, and judging by its success here the palm must be given to Garibaldi, as it sets very freely and ripens the fruit more quickly than any other variety. The experience of the past winter will prove to many the fallacy of giving Strawberries too much protection during winter; in fact I think that most of the failures could be traced to this one cause. We have had some protected thoroughly, and others with only a covering of glass, during severe weather; and those that had only the protection of a cold frame, without any covering at all except the lights, have turned out far the best, although they were frozen as "hard as iron" for several weeks together. But snow was never removed from the lights, and that must have been a great protection to them, and when the weather became milder the roots were active and the plants very healthy. I saw it mentioned in a contemporary that snow was very hurtful to the foliage when left on the lights for any length of time, but thought we would give it a trial, and the result was that the plants did not receive the least harm. During mild winters I consider that Strawberries would be better without any protection at all, merely plunging them in leaves or any other material.

One of the greatest secrets in Strawberry forcing is to have the runners laid as soon as procurable, and they ought to be established enough in 60-size pots to receive their final shift into 32's by the latter end of July. I know of no better compost for the runners than good loam. The pots need not be crocked, but place some rougher material in the bottom, with a layer of soot over it to keep out worms. Press it in very firmly, as the Strawberry delights in a firm soil. After they are layered they must be well attended to as regards water, and when well rooted they should be severed from the parent plant. In about a week after they will be ready for repotting, employing 32-pots well drained and the following compost:—Four parts of good yellow loam and one of good decomposed manure; ram the soil very firm, and place the pots on bricks or boards in the full sun. The plants must be well watered, removing all runners as they appear. When wanted for forcing they must be brought on gradually, using the syringe freely to keep down insects. As the flower spikes appear give liquid manure at every third watering, and

when the blooms expand do not let the night temperature range higher than 55°, with a free circulation of air on all favourable occasions. After the flowers are set thin the fruit to about twelve or fourteen, and at this stage they will require a high moist temperature with full exposure to the sun, giving liquid manure at every alternate watering till they commence to colour, when only clear water must be used. It is best to let the plants get rather dry before gathering the fruit, as it imparts a better flavour to it. I think that saucers to stand the pots in are quite unnecessary, as the fruit is never so fine or good in flavour when such are used. Care must be taken never to let the plants suffer by deficiency of water, as it stops their growth and cripples the fruit, besides subjecting them to the attacks of red spider. If the earliest-forced plants of Garibaldi, after the fruit is gathered, be kept well supplied with water, and are planted out on a well-prepared border, they will yield a good supply of fruit in the autumn.

As regards varieties most growers have their favourite sorts, but for an early forcer none, as before observed, excels Garibaldi, to be succeeded by Keens' Seedling, Sir C. Napier, Dr. Hogg, James Veitch, President, and for late work Loxford Hall Seedling, as the fruit seems more refreshing on a hot summer's day than most other varieties.—SOUTHERN GROWER.

PROSPECTS OF THE ROSE SEASON.

I AM afraid, except in highly favoured localities, that my experience must bear out the remark of "A. C." in last week's Journal, that this late season the cutbacks—but quite as an abnormal fact—will be in bloom before the maidens. Having been unusually busy lately I had not visited for some fortnight a fine lot of one thousand two or three-year-old cutbacks I happen to have on some newly-broken-up old turf at a little distance from my garden. At that time nothing could look more healthy and promising than their appearance, while an adjoining lot of the same number of maidens were only just starting above the ground and very irregular in the rows. Now the aspect of both is entirely changed. The maidens are luxuriating half way up their supports—a splendid take; while the cutbacks—I positively torture myself afresh while I describe my sensations in disbudding them. It was quite useless trying to coach my young folk who were eager to learn their work, for on five plants out of six there was no prominent bud on the main stem to leave. No reigning sultana raising aloft her head in dainty pride from her leafy couch, but a motley harem of shapeless monstrosities marred and soiled, not by "A. C.'s" foes the caterpillars, but by clustering lines of aphides and "cuckoo spit," saw-grubs by the legion, with other abominations fit only to fill a cauldron for a witch's supper. One has not far to go, I imagine, to find a reason. The cutbacks had already made a quick and luxuriant start, while the maidens had hardly awoke from their long winter sleep; consequently the former felt keenly the check which has completely crippled them (in my case from night frosts I presume), as my nursery lies low and near a brook; while the latter, with the moist, even, high temperature of the last fortnight, have been going, as gardeners say, all one way.

It is fearful to think, late and checked as vegetation is now except in warm spots, what it would have been if such elemental conditions as we have been going through for the past few weeks had succeeded an early or even average burst of spring. In the gardens near my sheltered high-lying rectory Roses, especially Teas, never looked cleaner or more luxuriant; but in the case of the Hybrid Perpetuals buds are conspicuously few in number and soft and unshapely. As a slight set-off I hear hardly a complaint of the deadliest enemy of the Rose—the mildew, thanks to the late even and moist high temperature.

On the whole I am inclined to think that late Rose exhibitions will be unusually good, and Rose exhibitors like Mr. Cranston, who depend upon plants grown as maidens on the Manetti, will for once be rewarded. All, of course, will depend on the weather altering for the better very soon. But how about the early Rose exhibitions, and notably the National Rose Show at the Palace next Saturday? *Horesco referens!* After growling in company with many a clerical brother for months at this Exhibition *par excellence* being held on a Saturday, I am now absolutely thankful to those higher engagements which keep me away. This is an age fertile in surprises, but unless our ready and energetic Hon. Secretary has a ship cargo of Rose boxes quietly under weigh from Dakota the public must be going to see the play of Hamlet with Hamlet left out! *Absit omen* is the sincere wish of—THE HEREFORDSHIRE INCUMBENT.

A DAY AMONGST RHODODENDRONS.

WHAT may be described as Rhododendron time is, perhaps, the most beautiful of the whole year, for when the gorgeous shrubs are in fullest splendour Lilacs have not yet faded, Thorns are draped in their white and scarlet attire, Laburnums are bright with golden streams, and Guelder Roses bend under their load of great white heads; then towering above these are, this year at least, Chestnuts very mountains of beauty, with fresh clean foliage all around in the gloss of its summer newness, untarnished by dust, unchanged by noontide heat. Such is the garb of Nature during Rhododendron time, and although most of the trees named bloomed much later than usual this year, they have escaped injury by spring frost, and have been particularly fine.

Rhododendrons have not as a rule bloomed so profusely as usual owing to the luxuriant growth of the shrubs last summer, but the trusses have been finer, and such displays as two I have to note were last week magnificent. The varieties mentioned below are amongst the very best in commerce, and no one essaying the cultivation of these shrubs can err in including them in collections they contemplate forming, or of adding such of them to existing collections as do not already embrace them. The first collection visited was that at

DUNEEVAN.

Mr. McIntosh's garden has frequently been referred to, and the Rhododendrons have been noticed in previous years; but so complete is the collection of these shrubs, with such freedom do they grow, with such care are they arranged and cultivated, and with such advantage are they displayed, that they demand attention in each recurring season of their blooming. The shrubs are grouped in large beds on a smooth undulated lawn, and on the lawn and in the background are some of the finest specimens of Conifers to be seen, and also some remarkable deciduous trees—grand Oaks that have been there for centuries, a magnificent Birch like a central living fountain, green and purple Beeches and other trees, besides flowering trees and shrubs of the kinds noticed above. Thus there is abundance of variety and sufficient relief for the gorgeous masses of Rhododendrons. Amongst the shrubs, and rising above them at intervals, are pyramidal variegated Hollies and standard variegated Maples; these with Roses and Lilium auratum render the beds cheerful after the Rhododendrons have ceased flowering. Besides the Conifers, &c., on the lawn are splendid specimens of standard Rhododendrons, such specimens as are seldom seen in a private collection. That grand variety Michael Waterer, for instance, had a head about 5 feet in diameter with three or four hundred trusses of its richly coloured flowers. Scipio, another fine variety, less glowing yet distinct and beautiful, is of the same size. Fastuosum flore-pleno is equally large, and is a mass of lively purplish mauve. Joseph Whitworth, one of the finest of the very dark varieties, dark purplish lake, has a noble head; and similarly fine are the flowering rosy and crimson varieties Archimedes and Barclayanum, and the excellent white Madame Carvalho. The floriferous character of these fine standards is attributed by Mr. McIntosh to the distance the sap has to travel from the roots to the branches; but the firmness of the soil of the lawn has no doubt also an influence in arresting the growth of the shrubs and promoting their free flowering. In the beds the following are amongst the most notable varieties, and it may be convenient to group them according to the prevailing colours.

Whites, and Blush Changing to White.—Album grandiflorum, fine white. A. elegans, good shape. A. triumphans, large bold flower. Delicatum, white, brown blotch. Exquisite, white, buff spots. Ingrami, blush white, chocolate spot. Mrs. J. Clutton, one of the best whites. Madame Carvalho, remarkably fine, green spots. Mrs. Tom Agnew, bluish white, lemon blotch. Perfection (Standish), bluish white, fine form. Purity, blush white, faint yellow eye; fine. The Queen, lilac blush to nearly white. Duchess of Cambridge, white, yellow spot. The three following Whites are distinctly marked and spotted:—Countess of Normanton, white, dark maroon spot, large flower; good. Jean Stearn, white, purple spot. Lady Guinness, white, maroon spot; a very fine variety.

Purple and Mauve.—King of the Purples, very fine. Nero, purple, dark blotch; very good. Old Port, purple; good habit.

Purpureum elegans, very compact and fine. Schiller, bluish purple, dark spot. Sir Thomas Sebright, purple, bronze blotch. Everestianum, mauve, fringed edge; full and attractive. Fastuosum flore-pleno, mauve, semi-double; and Surprise, mauve, with an intense blotch.

Plum and Lake.—Joseph Whitworth, lake, very much spotted; noble flower and truss. Cruentum, lake. Fervum, plum; and W. H. Punchard, plum, orange centre; quite distinct.

Salmon Pink.—Lady Frances Crossley; Mrs. R. S. Holford, very distinct and good; and Mrs. John Penn.

Pinks and Light Rose Shades.—Kate Waterer, rosy pink with green blotch; very beautiful. Lady Grenville, light with pink edge; very delicate. Mrs. W. Agnew, light pink, bright edge, pale orange centre; very handsome. Mrs. Williams, light rosy pink; very distinct and beautiful. Mrs. Heywood, very delicate pink, orange blotch. Madame Van der Weyer, rich pink, crimson blotch. Duchess of Edinburgh, rosy pink, very handsome medium size truss. John Spencer, pink.

Rose and Bright Rose.—Lady Falmouth, rose, black blotch; excellent. Mrs. Thomas Longman, bright rose, with a light brown blotch. Mrs. Thomas Wain, purplish rose, chocolate blush. W. E. Gladstone, much spotted with brownish spots. Titian, very brilliant rose. Notabile, fine rose, good truss. Lady Eleanor Cathcart, rose pink with chocolate blotch. Lady Armstrong, light centre, very dark spot; beautiful.

Crimson and Scarlets.—Beauty of Surrey, dark crimson. Charles Bagley, cherry red. Frederick Waterer, very bright; one of the best. H. W. Sargent, large truss; good. H. H. Hunnewell, dark crimson. James Bateman, scarlet crimson. John Waterer, very fine. Lord Selborne, very rich and good. Michael Waterer, scarlet crimson; one of the best. Meteor, bright scarlet crimson; fine. Pelopidas, very fine and showy truss. William Austin, bright and free bloomer.

Rosy Crimsons.—Alexander Dancer, very bright; good. Archimedes, rosy crimson, lighter centre. Blandyanum, fine truss. Decorator, good spot. Mrs. Joseph Shuttleworth, fine, intense blotch. Raphael, large, spotted crimson.

The following, which have the colours more or less mixed, were also very attractive:—Alarm, white centre, very bright crimson edge; Miss Owen, delicate pink, spotted; Duchess of Sutherland, white, margin rosy lilac; and Baroness Schröder, white centre, bordered pink.

The above varieties are all of great merit, yet they are only a few out of many others in Mr. McIntosh's great collection, which it is gratifying to observe affords both pleasure and instruction to many visitors during the blooming period. On the day of my visit some members of the Council of the Royal Horticultural Society—Lord Alfred Churchill, Mr. Webb, and Dr. Denny—were among the admirers, and great as are the facilities of these gentlemen for witnessing grand floral displays, they admitted having had a treat of no ordinary kind in their visit to Duneevan. The shrubs, it may be well to remark, however, are now fading, and cannot be seen in their full beauty until June, 1880.

COOMBE WOOD.

Messrs. Veitch's fine nursery was next visited. It is attractive at all times, but especially so in mid-June when the Rhododendrons and hardy Azaleas are in the zenith of their beauty. The soil of the nursery appears to be particularly congenial to these shrubs, which produce short sturdy growth, fine foliage, and flowers remarkable for their profusion and quality. It is impossible to adequately describe the effect produced by the grand avenue of standard Rhododendrons during their season of beauty—an avenue more than a quarter of a mile long, with, I think, six rows of grand specimens on each side of the path, from which the ground slopes upwards on both sides, showing the shrubs to perfection. The heads of these standards are from 3 to 4 feet in diameter, and are on clean straight stems from 4 to 6 feet in height. The heads are of faultless shape and close growth, nearly every point producing a truss. When it is noted that the varieties are all superior, and are those best adapted to this form of culture, and that they are carefully arranged as to colours, the gorgeous effect of the display may be in some measure imagined. As lawn ornaments no shrubs can equal these. In bloom they are simply magnificent, out of bloom handsome; and they ought to be grown in all pleasure grounds in which they will flourish. Indeed they are highly worthy of having special preparation to induce them to thrive where the soil is not naturally suitable for them.

In addition to the standards the collection of dwarf shrubs is an extensive one, and as arranged chiefly on a sloping bank are seen to great advantage. All the fine varieties above mentioned are included, some of them—such as The Queen, Madame Carvalho, Everestianum, Mrs. Holford, Mrs. J. Clutton, Frederick Waterer, Sir Joseph Whitworth, Charles Bagley, and others having magnificent heads and trusses, and others also are extremely fine. Amongst them may be noted Stella, rose, rich blotch, hardy and free; Lady Rolle (Veitch), paper white, rich chocolate blotch, excellent; Formosum elegans (Veitch), bright deep lively rose, claret blotch, fine; Lady Duckworth (Veitch), blush shaded with rose, grand in truss and foliage; Lady Claremont, deep rosy crimson, spotted maroon, splendid; Leviathan, blush, prominent chocolate blotch, attractive; Herschell, soft rose, large, magnificent foliage; Caractacus, rosy-crimson crimped petals, fine hardy decorative variety; Verschaffelti, pale lavender rose, bold blotch, grand standard; Lord John Russell, deep rose, bold blotch, hardy and free; Mirabilis, glowing rosy-crimson, one of the finest standards; Sherwoodi, a fine old rosy-lilac variety, free, certain bloomer, and excellent; Lord Clyde, rich crimson, conspicuous. Amongst the finest standards are those of the free and attractive Everestianum, one of the finest decorative varieties. A new variety closely resembling it in character, but much deeper in colour, and with grand catawbiense foliage, will probably become equally popular. Its name is not "fixed," neither is that of a clear soft rose variety, particularly smooth and delicate. Both these varieties possess great merit and will be largely propagated and grown.

I have notes of a very few of the very best hardy Azaleas which have ever come under my notice, but their publication must be deferred to some future issue of the Journal.—J. W.

YORK FLORAL FÊTE AND GALA.

JUNE 18TH, 19TH, AND 20TH.

THE twenty-first of these great exhibitions was held last week in the Bootham Field, York, and proved highly successful both horticulturally and financially. The exhibits were as usual very numerous, and many were characterised by more than ordinary merit. They were arranged in five long and spacious marquees radiating from a lofty circular one in the centre, where the gigantic specimen stove and greenhouse plants in competition for the £20 prize were staged. One marquee was devoted to Pelargoniums, the display being extremely beautiful, as the plants could be seen to the best advantage on the low stage which extended the entire length of the tent. Here was a wealth of floral beauty which could scarcely be surpassed, and the appearance of the plants as viewed from the end of the marquee was one that would always be remembered with pleasure by those who were fortunate enough to witness such a tasteful and charming arrangement of colours. This was certainly the most attractive part of the Exhibition, and that it was generally appreciated was evinced by the exclamations of surprise and admiration with which it was greeted by thousands of the visitors. In another marquee were the collections of smaller stove and greenhouse plants, in a third we found the Roses, a fourth was devoted to groups of plants, and the fifth contained the fruit and cut flowers. Those enumerated were the principal features of the Show, but classes were provided for plants of all descriptions, Ferns, Orchids, Foliage plants, and Fuchsias being well represented. First, second, and third prizes were offered in nearly all the classes, and in some a fourth was awarded; their value ranged from £20 to 3s. The competition was mostly keen, and in a few instances the exhibits were so nearly equal in merit that the Judges must have experienced a difficulty in awarding the prizes. The weather, on the whole, was very favourable to the success of the Exhibition, and as excursion trains at very moderate fares ran from all the principal towns in the district, an immense number of persons availed themselves of the opportunity to enjoy a holiday and a visit to the ancient city of York. On the first day of opening the floral fête was well attended, but on the second day the people came *en masse*, for the number of admissions reached as high as 25,000. Some minor attractions were provided, but the majority of the visitors evidently came to see and enjoy the floral treasures so liberally contributed by the gentlemen and growers of the neighbourhood. Great praise is due to Mr. Wilson, the energetic Secretary, for the care and excellent judgment with which he had arranged and classified the numerous exhibits, and the Committee are fortunate in possessing so able a coadjutor to fulfil the onerous duties incident upon the management of such an extensive Exhibition.

STOVE AND GREENHOUSE PLANTS.—Three classes were appropriated to these plants, there being three entries in each, and the specimens staged were fine, particularly in the open class for ten plants, for which prizes of £20, £10, and £5 were offered. Mr. Tudgey, gardener to F. Williams, Esq., Worcester, secured the premier award with gigantic plants in superb condition. Erica Cavendishiana was certainly as near perfection as possible

in shape, health, and profusion of large flowers; the specimen was over 5 feet in height and diameter. A large and handsome plant of Pimelea decussata was conspicuous for the great number of blooms, and Croton pictus had beautiful and richly coloured foliage of unusual excellence. Anthurium Schertzerianum, bearing more than fifty large and brilliant spathes, was unrivalled. Genetyllis tulipifera possessed considerable merit, and the remaining portion of the collection comprised vigorous Palms and Cycads. This very handsome group was arranged together with the two following on a six-sided stage in the central marquee, and was justly entitled to the prominent position and recognition its merits received. Mrs. Cole & Sons, Manchester, were placed second with a collection of very large and well-grown plants, but slightly inferior to the preceding in regularity. The most noticeable were Allamanda cathartica with good flowers; vigorous specimens of Gleichenia rupestris and G. speluncæ, the latter an enormous plant 7 to 8 feet in diameter; and a handsome Cycas revoluta. Mr. Stephenson, gardener to Alderman Weatherley, was third with a collection that would scarcely bear comparison with the others.

In the amateurs' class for six plants there were three entries, and Mr. Tudgey was again first, his collection including even and well-flowered plants, of which the following were especially observable:—Erica ventricosa magnifica, one of the best Heaths we have seen this year; E. Cavendishiana, also in good form; Dracophyllum gracile and Bougainvillea glabra, both excellent. Mr. Noble, gardener to T. Fry, Esq., Darlington, was a close second, several of the plants being equal to those in Mr. Tudgey's collection, especially Erica perspicua nana, which was very neat and healthy, but one or two were slightly deficient in the quality of their blooms. Mr. Berry, gardener to W. Dove, Esq., York, was a good third, that beautiful greenhouse plant Phœnocoma prolifera being exceptionally fine, also Statice profusa. There were three competitors in the amateurs' class for three plants, who all produced very praiseworthy specimens; Mr. Tudgey as usual obtained first position among them. The most prominent was Clerodendron Balfourianum in remarkably beautiful condition, very regularly trained, and profusely flowered. Mr. Noble, the next in order of merit, exhibited three fair plants, a Stephanotis being the best. Mr. Wright, gardener to G. Talbot, Esq., Leeds, being third for plants of fair quality.

Azaleas were neither numerous nor in first-rate form, but Mr. Berry's collection of three medium-size plants merited the first prize which was awarded for them, as did also those from Mrs. Cole & Sons in the class for four, although the latter were somewhat rough.

In the open class for eight ornamental plants there were four entries, the specimens being far above the average in three of the collections. The premier prize was received by Mr. Wood, gardener to A. Wilson, Esq., Hull, and the specimens he exhibited of Yucca aloifolia variegata, Cordyline indivisa, and Croton Weismanni were highly commendable for their free growth and the richly coloured foliage of the latter. Equal seconds were awarded to Mr. Lazenby, gardener to Mrs. Pease, Darlington, and Mr. Noble, whose plants were very beautiful. The Crotons in the former collection—C. Disraeli, C. majesticus, and C. Andreanus, being superbly coloured; and in the latter were Davallia Mooreana, Croton interruptum, and Cycas circinalis as healthy, graceful, and vigorous as could be desired. In the amateurs' class for five only second and third prizes were awarded, the former going to Mr. Tudgey for fairly good specimens. Heaths were not well shown, but Mr. Tudgey's first-prize collection in the class for three plants was much superior to the others.

Pelargoniums.—As we have already remarked, the display of these plants was extremely good and the entries were very numerous, particularly in the classes for bronze foliage varieties. Fancy varieties were well exhibited, and in the open class for six plants the collections staged were very even and beautiful. F. W. Tetley, Esq., obtained the first prize for plants of medium size but bearing an abundance of well-formed flowers. The best were Ellen Beck, a neat little plant; Sweet Lucy, quite in accordance with its name; Marguerite, excellent flowers; and Roi des Fantasies, vigorous and attractive. Mr. C. Rylance followed with smaller plants, but quite as profusely flowered; and Messrs. Lazenby and Son received the third prize for a good collection. In the amateurs' class for three Fancy varieties F. W. Tetley, Esq., was again first, his collection including superb specimens of Cloth of Silver, Mrs. Hart, and Nelly Fordham; the flowers were neat, and plants healthy. J. Talbot, Esq., was second with an attractive and even lot of plants; the aptly named and pretty variety Delicatum was in prime condition. There were four entries in the open class for twelve show varieties, and very handsome plants were staged. Mr. C. Rylance was placed first with fine plants over 3 feet in diameter, the growth being regular and the flowers large, particularly of Queen Bess; the others were even in size and highly meritorious—Triomphe de St. Mande, Brigantine, Claribel, and Prince Leopold being delightfully fresh. The second prize was awarded to Messrs. Lazenby & Son, and the collection approached remarkably close in general excellence to the preceding, but the varieties were not quite so good, and the flowers were slightly inferior in size. Queen Bess was the best plant shown. Mr. May was third with a bright selection, Warrior and Patriarch being noticeable. The amateurs' class for six show varieties was well filled. F. Simpson, Esq.'s collection was a very good one, and he was justly entitled to the first prize, for the varieties were excellent and the flowers fine; but the recipient of the second prize, F. W. Tetley, Esq., staged a group that was so near the other in point of merit that it required a little observation to detect the difference. Mr. McIntosh, gardener to T. Hingston, Esq., was third with somewhat indifferent plants.

The first prize for the best three show varieties (amateurs) was secured by F. W. Tetley, Esq., who was closely followed by F. Simpson, Esq., and J. Talbot, Esq. Two classes were devoted to Zonal Pelargoniums, one (open) for six varieties, and the other (amateurs) for three. Mr. Stephenson, gardener to Mr. Weatherley, easily secured the first place with fine plants bearing enormous trusses. The variety Caven Fox was remarkable for the large beautifully formed blooms and truss. F. W. Tetley, Esq., was second with neat specimens, Mr. McIntosh third, and Messrs. Lazenby & Son fourth. In the class for three varieties there were five entries, Mr. McIntosh being justly awarded the chief prize for the varieties R. Clifton, La Farinaise with enormous trusses, and Queen of Beauties, a veritable queen of Pelargoniums. T. Simpson, Esq., was a good second, and Mr. Stephenson followed; both staged good plants, an extra fourth prize being secured by J. Talbot, Esq.

Nosegay Pelargoniums were well represented in the two classes appropriated to those varieties. Mr. McIntosh was first in the open class for six varieties with even and good plants. The other two prizes were received by F. W. Tetley, Esq., and Messrs. Lazenby & Son, there being a marked inferiority in both collections. There were four exhibitors in the amateurs' class for three collections. Mr. McIntosh again obtained the premier award with profusely flowered specimens of Blue Bell, Col. Holden, and Grand Duke. Mr. Stephenson was an excellent second, and T. Simpson, Esq., followed with somewhat irregular plants. Double varieties were numerous and well shown in the open class for six. Mr. A. Simpson, Heworth, exhibited good plants of Marie Lemoine and Emilie Lemoine, and he was placed first, Messrs. Smith and Son coming next, and F. W. Tetley, Esq., was third with rather small plants.

Bronze Pelargoniums were extremely numerous, and their merits were far above the average, the collections including all the best varieties. In the open class for six varieties the competition was keen, there being five entries. Mr. R. Simpson, Selby, was awarded the first prize for vigorous deeply coloured specimens over a yard in diameter. The following were the best—Black Douglas, Rev. C. P. Peach, Earl of Beaconsfield, Impératrice Eugenie, and Maréchal MacMahon. Mr. E. Jackson was placed next, one of his plants—viz., Prince Arthur, being unusually fine, the zone broad and very dark. Miss Wharton obtained the third position, and Mr. Stephenson was fourth. S. Riley, Esq.'s amateurs' three were good, the varieties Princess Royal and Earl of Rosslyn being in fine condition. The first prize was most deservedly awarded. J. Walker, Esq., was second, and the third and fourth prizes fell to Miss Wharton and Mr. Stephenson. There were seven entries in this class, and several of the collections unnoticed were nearly as good as those which secured the prizes. Tricoloured varieties like all the others were abundant, and in the amateurs' class for three plants seven competitors entered the lists. J. Cholmley, Esq., was first with pretty plants of the varieties Prince of Wales, Peter Grieve, and Sophia Dumaresque. W. Walker, Esq., was second, and Mr. E. Jackson and J. Riley, Esq., followed with meritorious specimens well grown and coloured. In the open class for six there were not quite so many entries as in the last, but the plants were good and the five competitors staged good specimens. Mr. Gibson, Mr. R. Simpson, and Mr. A. Simpson received the prizes in the order named.

Roses.—Taking into consideration the meteorological difficulties Rose-growers have had to contend with this season the immense number of plants exhibited was something astonishing, and although the majority of the blooms were not first-rate, still there were some that possessed undeniable excellence. Eight classes were allotted these plants, and in most the competition was good. In the open class for six distinct varieties Mr. Pybus's premier collection comprised plants of medium size in 14-inch pots, very even and fairly well flowered, the growth clean and vigorous. The best varieties were Centifolia rosea, Marquise de Castellane, and Juno. F. W. Tetley, Esq., was second with smaller plants, but Miss Hassard was in good form, bearing about three dozen blooms. Mr. May was third with large but loose specimens, and the flowers were not well formed. The plants staged in the corresponding amateurs' class were, with the exception of Mr. Tetley's six, of indifferent quality. The varieties J. B. M. Camm and Céline Forestier in this collection were healthy and freely flowered. For nine Roses in 8-inch pots (open class) Messrs. Jackson & Co. exhibited some very neat little plants, the flowers possessing good substance, and each plant bore on an average a dozen blooms each. The first prize was secured with ease. The most noticeable varieties were Firebrand, Madame Lacharme,

Marquise de Castellane, and Baronne Prevost. Mr. Pybus's plants were larger, but the flowers were not quite up to the standard. Mr. May followed with small and rather irregular plants, but some of the flowers were fine.

In the open class for fifteen Roses in pots Messrs. Jackson and Co. again obtained the premier award, their plants being very even in size and well flowered. Perhaps the best were Niphetos, Marquise de Castellane, and Sénateur Vaisse. Mr. Pybus held the second position with fair plants, and Mr. May was a good third. The exhibits in the class for a single plant (light and dark) were rather deficient in quality, but Mr. Pybus had a vigorous specimen of Madame Lacharme (light) with good blooms and obtained the first prize, and the same exhibitor was placed first with Jean Cherpin as the best dark Rose shown. In addition to these Messrs. Jackson & Co. staged a number of plants in small pots that were highly creditable to them.

Orchids were far below the average of previous years, but a few fairly good plants were shown. Mr. Mitchell, gardener to Dr. Ainsworth, Manchester, gained the first prize for three plants with healthy specimens, the fine Aërides maculosum Schröderi bearing five long spikes of flowers. Mr. Hayward, gardener to Mr. Hincks, Thirsk, was second, his plants being rather small; but Dendrobium suavissimum, with two long spikes, was very attractive. For six plants Mr. Mitchell was first with a collection that included a large Vanda suavis, Saccolabium retusum with six spikes, and Phalænopsis grandiflora aurea bearing eight spikes. Mr. Hayward was a good second with neat specimens, among which Epidendrum vitellinum had twelve large spikes.

Ferns were exhibited in good condition, particularly the hardy varieties. Mr. G. Spence, Darlington, staged two large Tree Ferns (Dicksonias), and was awarded the first prize; the other exotic Ferns were few and of indifferent merit. Mr. Scott, gardener to J. Buckle, Esq., York, was awarded the first prize for twelve hardy Ferns; his Lastreas and Athyriums being very healthy and fresh. Mr. W. Robinson, York, and Mr. Rylance, Oughton Nurseries, Ormskirk, followed. For six Lycopods Mr. Berry was an excellent first, his plants being well grown and vigorous. Selaginella Wildenovi was especially remarkable. Mr. Stephenson was second, also with good plants.

Fuchsias.—Mr. Clarke, gardener to Miss Wharton, Burton Grange, exhibited six very handsome specimens, pyramidal in form, regular, and covered with flowers. The first prize was awarded. Mr. McIntosh who followed sent some large plants, but rather coarse. Mr. Stephenson's third-prize lot was composed of untrained specimens. Two collections of specimen Coleuses were exhibited. Mr. Stephenson's premier six were fine plants about 6 feet high and well grown, while Mr. McIntosh's specimens were nearly as good. In the class for a collection of bedding plants Mr. Simpson, florist, Selby, was placed first with a good variety of useful plants; Mr. A. Simpson, Heworth, being second with similar plants, and Mr. Stephenson third.

Hardy plants were fairly well represented. Mr. Rodwell gained the first prize for twenty distinct species or varieties with a charming group, and he also received the first prize in Messrs. Backhouse's class for twenty alpine plants. Mr. A. Simpson was second. Both exhibited very pretty and choice plants.

Groups.—In the class for a group composed of miscellaneous plants to cover a space not exceeding 200 square feet there were five competitors. Mr. Berry obtained the first prize, and his group was an excellent one. The centre was occupied by a lofty Fan Palm, and around that were Statices, Azaleas, Spiræas, Dracænas, Pelargoniums, &c., and the whole was edged with small Ferns and Calceolarias. Mrs. Cole & Sons were second with an elegant and light group, composed principally of foliage plants. Mr. Tudgey was third with a neat arrangement, and Mr. House of Peterborough was awarded an extra prize for a group composed of Palms, Clerodendrons, and Bougainvilleas.

Cut Flowers.—Roses were well represented, twenty boxes being staged containing on an average two dozen blooms each. Some good flowers were exhibited, especially in the class for forty-eight distinct varieties. Mr. May received the first prize for a collection of very fair blooms, their general form and substance being good. Pierre Notting, Maréchal Niel, and Souvenir d'un Ami were the best among them. F. W. Tetley, Esq., was second with an inferior collection. Messrs. Jackson & Co.'s first-prize collection in the class for thirty-six varieties was very good. For twelve bunches of cut flowers (stove and greenhouse plants) Mrs. Cole & Sons secured the first prize with some excellent flowers, Allamanda nobilis and Ixora coccinea being highly meritorious. Many other excellent collections were exhibited, and also several graceful bouquets.

Fruit.—This was very abundant, and the quality was certainly above the average. In the class for a collection of ten varieties Mr. McIndoe, gardener to J. W. Pease, Esq., M.P., was awarded the first prize. The collection comprised a good dish of Strawberry James Veitch, handsome specimens of Royal George and Barrington Peaches, well-ripened Lord Napier Nectarines, two bunches of Muscat of Alexandria, well coloured and large berries; two fine bunches of Black Hamburgh Grapes, good Pines and Melons. Mr. Bannerman, gardener to Lord Bagot, was second, his collection including a very fine Melon Golden Perfection, and two beautiful bunches of Foster's Seedling Grapes. Mr. Miles, gardener to Lord Carington, was third, a dish of very fine Black Circassian Cherries being noticeable. In the class for six varieties some good fruits, particularly the Peaches in Mr. McIndoe's first-prize collection. For a collection of four varieties Mr. McIndoe again secured the first prize, exhibiting two very fine bunches of Black Hamburgh Grapes. For two bunches of Black Grapes there were six entries; Mr. Wallis, gardener to Sir H. M. Thompson, was placed first. The variety was Black Hamburgh, the bunches large, and the berries well coloured. He was followed by Mr. Noble and Mr. Himsley. Mr. Bannerman secured the first prize for white Grapes with small bunches of Buckland Sweetwater, but the berries were well formed and finely ripened. Mr. McIndoe followed with Muscat of Alexandria, and Mr. Wallis with Chasselas Musqué. For two bunches of Grapes (a new variety), Mr. Chuck, gardener to C. A. Thelluson, Esq., was first with Duke of Buccleuch, bunches of medium size, but the berries enormous. Mr. McIndoe was third with Madresfield Court, small bunches and berries, but well ripened. Peaches were exhibited in tolerably good condition but were not very numerous. There were seventeen entries in the two classes for Melons. Mr. Clarke, gardener to the Marquis of Ripon, was first with scarlet-fleshed variety Royal Ascot, and Mr. Yule, gardener to H. Pease, Esq., was first with a green-fleshed variety: both were thoroughly well ripened though small, and were far ahead of the other exhibitors. Strawberries were very poor. In the class for a brace of Cucumbers there were fourteen entries, and extremely even good fruit were staged. Mr. McIndoe was first with a fine straight specimen of Verdant Green; R. Ormsby, Esq., was second with Telegraph; and Mr. Poad of York third.

Apart from the exhibits provided for in the schedule were two groups which must receive special notice. One of these was the handsome and extensive collection of choice foliage and flowering plants contributed by Mr. B. S. Williams, for which an extra prize was awarded; and the other was a collection of beautiful Tuberous Begonias from Messrs. Laing of Forest Hill. These were valuable additions even to an Exhibition so fine as was the York Floral Fête which we have endeavoured to describe. We only noticed one omission — namely, that the names of the gardeners and addresses of many competitors were not inserted on the prize cards. In all other respects the Show was very complete.

THE PAULOWNIA IMPERIALIS.

Attention has lately been called to this tree, which is now extensively planted in the avenues of Paris. It was introduced to France for the first time in 1834, and the first cutting planted at the Museum Garden, where it still exists, having grown into a largish tree. The leaves are very large and handsome; the flowers are bell-shaped, somewhat resembling the Foxglove, and of a beautifully shaded lilac colour. They are disposed in large bunches and have an agreeable odour. The flowers expand in May at Paris. The common name of the Paulownia in Japan, of which place it is a native, is the Kiri, and it was introduced to Europe by Sieboldt and Zuccarini. According to the *Agriculture Pratique* it is not at all a delicate tree in France and will grow almost anywhere, and is propagated by cuttings, from the roots, and also by seeds. No doubt the tree would grow very well in this country, and perhaps flower in warm situations. At all events it is worth a trial, and doubtless some of our leading nurserymen may be in a position to supply plants next autumn.

It is thought in France that the wood of this tree is likely to have a commercial value, and be useful for turning and other purposes.—Amateur, *Cirencester*.

[A large specimen of the Paulownia produced flowers last year in Kensington Gardens. There are many trees in this country, but they are not unfrequently injured by spring frosts. —Eds.]

THE SEASON.

I have been wondering if the season is as backward in all parts of the country as it is here. I can hardly think so, or we should have heard more about it. I never saw such spring or summer weather, not even in Scotland, as we have this year experienced in South Wales. It is now the longest day, and we have not had ten spring days this year, much less summer. The nights have been very cold, the temperature generally falling to about 45°, and there has been an extraordinary lack of sunshine during April, May, and June. Twenty-four hours never pass without rain, generally in abundance. Cold east winds are common, and altogether gardeners and farmers in South Wales this season have much to contend against.

If a decided change for the better does not quickly take

place the Potato crop will almost be a blank. The top growth they are making is something enormous, but the tubers, although plentiful, are extremely small; and should the disease take them early, as it is very liable to do with so much wet, the greater part of the crop, such as it is, must go. Last year we had plenty of fine Potatoes ready for digging on the early borders the first week in June; this year we will have none actually ready before the first week in July. Peas are much the same, and so are Strawberries, as well as nearly every other outdoor crop. At the earliest our Roses will not be at their best until the second week in July, if then; and I think if the National Rose Society carries out its Show on June 28th failure must be the result. Some object to putting back show dates, but this season I am of opinion that all June and July shows might be postponed a fortnight or three weeks with advantage to all concerned.—J. MUIR, *Margam Park.*

ROYAL HORTICULTURAL SOCIETY.

JUNE 24TH.

THIS was the date originally fixed for the Rose and Pelargonium Show, which, however, was subsequently postponed to July 8th, with the proviso that Pelargoniums might be exhibited for certificates. In compliance with this a few were staged, three certificates being awarded as named below. Mr. Turner's group in the conservatory, and the Tuberous Begonias from Chiswick, and the new plants from Messrs. Veitch, were the principal features of this meeting.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. H. Prinsep, gardener to Colonel Harcourt, Buxted Park, Sussex, sent a seedling Melon called Alpha, but it was not in good condition. Mr. Gardiner, The Gardens, Etington Park, Stratford-on-Avon, sent two branches of Apricots to show the large quantity of fruit the tree has produced this season. There were eighteen large fruit in the length of 6 inches. Mr. J. Clarke, gardener to Lord Hastings, Melton Constable, sent a fruit of Sutton's Earl of Beaconsfield Melon, but as it was not allowed to be cut the Committee could not give an opinion on its merits. Mr. James Douglas, The Gardens, Loxford Hall, Ilford, sent fruit of Duc de Magenta Strawberry, to which a cultural commendation was awarded; but in point of flavour this variety is inferior to others in cultivation. Mr. Gilbert, The Gardens, Burghley, Stamford, sent a fruit of Gilbert's Netted Victory Melon, which was a specimen of Victory of Bath artificially netted by scratching the skin with a sharp-pointed instrument when the fruit is young. Mr. H. J. Hardy, Bures, Essex, sent some good specimens of a Lettuce called Easter King of Cos, which was identified as Hicks' Hardy White Cos.

FLORAL COMMITTEE—Dr. Denny in the chair. Several plants were exhibited by Messrs. Veitch & Sons, Chelsea, of which we may note Croton Bragsanus, that was certificated at the last Botanic Society's Show; it has narrow drooping leaves over 2 feet in length, irregularly marked and mottled with red, yellow, and green. Hæmanthus cinnabarinus, from the West Coast of Africa, was bearing a small umbel of brilliant scarlet flowers. A first-class certificate was awarded for Davallia fijiensis major, a handsome Fern with light green fronds about a foot in length, bipinnate, with deeply divided pinnules, light green. A first-class certificate was awarded to G. F. Wilson, Esq., Weybridge, for a specimen of Xerophyllum asphodeloides, bearing a raceme of small white flowers and grass-like leaves. A group of Tuberous Begonias were exhibited from the Society's garden at Chiswick, several being remarkably good. Gloire de Nancy is a fine double scarlet with neatly formed flowers. Nellie May bore enormous flowers over 3 inches in diameter, and pure pink in colour. Several seedlings were also highly meritorious.

Messrs. Barr & Sugden exhibited a collection of cut blooms of Irises and Pyrethrums, including some excellent varieties. Of the Pyrethrums the best white were Princess de Metternich and Boule de Neige; the best crimson were Gloire d'Estalle and Imbricatum plenum. A vote of thanks was awarded. Mr. Chambers, Westlake Nursery, Isleworth, exhibited a group of seedling Tuberous Begonias. A first-class certificate was awarded for Royal Standard, with enormous flowers over 3 inches in diameter, neatly formed, and brilliant scarlet. To Mr. A. Boxall, The Gardens, Claybury Hall, Chigwell, Essex, a cultural commendation was awarded for Cypripedium barbatum superbum with thirty fine flowers. A first-class certificate was awarded to Mr. James King, gardener to J. Simpson, Esq., Wray Park, Reigate, for a distinct and beautiful seedling Coleus Eva, the foliage very finely streaked with red and yellow.

In the conservatory Mr. Turner exhibited a large group of handsome Pelargoniums, including the best varieties, many of which were in excellent condition. Very prominent was that fine show variety Illuminator, sixteen small plants of which were arranged in the centre of the group. The flowers were unusually large and brightly coloured, but the trusses only of medium size. The brilliant crimson scarlet petals are pleasantly relieved by the white centre and dark markings on the two upper petals. Among many others we may note a densely flowered specimen of the fancy variety Miss-in-her-teens that was very pretty. A neat plant of Duchess of Edinburgh, the delicate pale pink-tinted flowers of which afforded a charming contrast with the more brilliant varieties. Two other good fancies were Resplendant and Princess Teck, the flowers being excellent in colour and size. Some choice show varieties were exhibited, one large plant of Claribel being particularly conspicuous. The flowers were pure white with the exception of two pale pink blotches on the upper petals, which add considerably to the effect of the flower. Troubadour was in splendid form, the peculiar bright salmon tint of the blooms with the dark blotches on the two upper petals render it very distinct. Prince Leopold was exhibited in very fine condition, and was bearing an immense number of its bright flowers. Red Gauntlet was somewhat startling in its brilliancy; and Venus, though only represented by a small and rather irregular plant, had several good flowers. A gold medal was most deservedly awarded for this beautiful group.

First-class certificates were awarded by the Pelargonium Society for the following Pelargoniums raised by Mr. Foster, all show varieties:—Invincible, with large and well-formed flowers, the three lower petals bright salmon in colour, and the two upper very dark maroon almost black, with an extremely narrow crimson margin, a white throat streaked with crimson; Emperor William similar, but there was more pink in the lower petals, and the throat was a clearer white; also for Joe as a decorative plant, the three lower petals being bright pink and the two upper dark maroon. A group of Gloxinias interspersed with Adiantums were staged by Mr. Fisher, gardener to F. Williams, Esq., Woodlands, Nightingale Lane, Surrey. The flowers on several of the plants were very finely formed and in good variety. A silver Flora medal was awarded. A group of Pelargoniums from the Society's garden at Chiswick was also shown, principally Ivy-leaved varieties and Cape species. At the end of the conservatory was a collection of cut blooms of Irises and Pyrethrums from Messrs. Barr & Sugden of Covent Garden.

NOTES AND GLEANINGS.

AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on June 24th, Lord Alfred T. Churchill, V.-P., in the chair, the following candidates were duly elected Fellows of the Society—viz., H. A. W. Bishop, Henry Cockburn, Mrs. Clayton East, Clement Hoey, William Bulkeley Hughes, M.P., David B. Lees, M.D., Arthur Panmley, Mrs. de Courcy Parrish, and Lady Caroline Turnor.

—— OUR old and well-known correspondent "WILTSHIRE RECTOR" is desirous of obtaining a country living before next winter in one of the southern counties, Surrey, Sussex, or Hants being preferred. Perhaps some patron might wish for him as a neighbour, or possibly he might be able to effect an exchange with a brother clergyman. Any communications on the subject may be addressed to "W. R." at the office of this Journal.

—— IN consequence of the lateness of the season the Show of the OXFORD ROSE SOCIETY has been postponed from July 3rd to July 16th.

—— THE Honorary Secretary of the Richmond Horticultural Society informs us that the PRINCE and PRINCESS OF WALES are expected to visit the Exhibition held this day (Thursday) in the Old Deer Park; and that the Duke and Duchess of Teck will arrive at the Show at five o'clock.

—— WE are informed that the HORSHAM ROSE SHOW, originally fixed for July the 1st, has been postponed until July the 12th, which will undoubtedly prove a more suitable date.

—— WE have received the schedule of the LIVERPOOL HORTICULTURAL ASSOCIATION'S SHOW, which is to be held in Sefton Park on August 2nd and 4th. Of the sixty-three classes twenty-four are open to all England, and as the prizes are good for both plants, fruit, and vegetables the competition ought to be correspondingly good. For twelve stove and greenhouse plants the prizes are £15, £10, and £5. £12 is offered in three prizes for eight dishes of fruit, and £6 for twelve of vegetables. Some very good prizes are provided for local exhibitors. The managers of this young Society merit success by the efforts they are making to secure it.

—— IN consequence of the inclemency of the season the BROCKHAM ROSE SHOW has been postponed from June 26th to July 4th, to be held in the Public Hall, Dorking.

—— A CAREFUL trial of several KIDNEY BEANS FOR FORCING has been made this winter at Ravensworth Castle. The palm has been awarded to Fulmer's Forcing, Mr. Moult stating that it bears a third more than any other variety, and is delicious in flavour.

—— MORE than twenty plants of EUCALYPTUS GLOBULUS

on the west coast of Co. Mayo, in different situations, some over 6 feet high, were all killed by the frost last winter. A few Veronicas were much injured, but are now shooting from the roots: some were uninjured.—H. W.

—— IN AGAPETES BUXIFOLIA we have a showy plant for a cool house well deserving of more extensive cultivation. The leaves are oblanceolate, crenate, and alternate; the flowers solitary, axillary, tubular, with a five-cleft spreading limb, bright scarlet in colour. It is allied to the Vacciniums, and is a native of Bhotan, whence it was introduced in 1856.

—— THE Committee of the CITY OF LONDON FLOWER SHOW, who had every reason to expect that H.R.H. the Princess Beatrice would distribute the prizes this year, regret to be obliged to announce that in consequence of the refusal of the Finsbury Circus Garden Committee to allow the use of their grounds, they are compelled with great reluctance to abandon the Flower Show for the present year.

—— MR. R. N. J. BAKER of Heavitree desires us to inform "A LOVER OF ROSE SHOWS," that he will "with great pleasure" give his Rose blooms after the National Show at the Crystal Palace to the excellent object for which they are required.

—— MR. GRAHAM, the able Superintendent of the Gardens at HAMPTON COURT, has published a new edition of his "Guide to the Parks and Gardens." It is more comprehensive than the issue of last year, which was so popular with visitors, as affording information on the various plants employed in the flower beds. The present edition contains diagrams of carpet beds, and gives the mode of planting of the various beds as adopted in the Gardens.

—— A BEAUTIFUL little greenhouse plant for flowering at the present time is HOVEA CELSII, one of the numerous Leguminous plants from New Holland. It is not by any means a new plant, having been in the country since 1818, but many are unacquainted with its beauty and value as a spring-flowering plant. The blooms are a bright clear blue, and are borne in dense racemes. A mixture of loam, peat, and sand suits it well, good drainage being provided.

—— ALTHOUGH the persons competent to judge have long since been convinced the PHYLLOXERA was of American origin, and not imported into that country from Europe, a curious confirmation of that opinion has recently been furnished to the French Academy of Sciences by M. Planchon, He stated that he had received a letter from M. Callot, Professor at the School of Pharmacy in Montpellier, dated from on board the "JUNON," Panama. In it the writer explained that in a virgin forest on the Isthmus of Darien he had found that the wild Vines were attacked and destroyed by the Phylloxera vastatrix. On the upper surface of the leaves he found numerous small galls or protuberances, which on being opened disclosed a laying aptera surrounded by some fifty eggs or young, all of which, on being examined by the microscope, presented the characteristics of those existing in Europe; and as that country is so far from the United States or any place in which the Vine is cultivated, the Phylloxera could not have been imported, as the Vine is never tended by the inhabitants, thus proving that the insect must be indigenous to North America.—(*Galignani.*)

—— IN one of the plant houses at Sandfield Park, West Derby, under the charge of Mr. W. Biggs, we recently noticed a fine batch of GLOXINIAS in bloom, principally erect varieties Some of the plants were 2 feet 6 inches across, and were well bloomed, and with many flowers yet to open. The old but useful Gesnera Donckelaari and Clerodendron fallax were in bloom, and deserve to be grown more largely. In the same house we also noticed Brassia bracteata, with ten spikes open, very delicate and striking; Oncidium Harrisonianum, with twenty-six spikes, in an 8-inch pan; also Oncidium lanceanum, throwing out some good flower spikes.

—— ONE of the most beautiful of Cinchonaceous plants is POSOQUERIA LONGIFLORA, a native of Guiana, with broad and dark green leaves, and terminal heads of extremely long white fragrant flowers. The corolla is hypocrateriform with a narrow tube 6 to 7 inches in length, a five-lobed limb 1½ inch in diameter. It is very distinct and an extremely valuable plant for the stove, requiring similar culture to the Gardenias. It was introduced in 1822, but is not by any means generally grown.

—— REFERRING to the DESTRUCTION OF SMALL BIRDS, the subject of which has been recently discussed in our columns, Mr. Bardney writes as follows on the destruction of birds of a larger kind:—"I was much interested, on the 22nd of last month, to find at Carlisle at a very early hour in the morning some portion of the fire brigade busy destroying the young from a few rooks' nests that were built in the trees in the cathedral yard: the object was to prevent the rooks building there. They were destroyed in a similar way last year, and will undoubtedly have to be next. If the miserable-looking trees were taken down, which have no special beauty, the cathedral yard would be improved in appearance, and the rooks then would have to find new quarters for their nests."

THE NATIONAL ROSE SOCIETY'S SHOW AT THE CRYSTAL PALACE.

URGED by the representations addressed to me from all parts of the country from Devon to Essex, and fortified by the expressed opinion of a small Committee hastily summoned, with one of our Vice-Presidents as Chairman, I have been trying to get the fixture for our Show altered, but have been unsuccessful. All the arrangements have been made, and had the attempt been made even a month ago I am assured it would have been equally impossible. It is much to be regretted, as the presence of their Royal Highnesses the Duke and Duchess of Connaught make it more than ever desirable that the Show should be worthy of the Society and of the Palace, but that I fear is impossible; but I hope exhibitors will see that, although I still hold the undesirability of altering dates, yet I am not so wedded to an opinion as not to seek to consult their wishes when they have been so decidedly expressed as on the present occasion. Never did such a season frustrate "the best laid schemes of mice and men."

At page 464, in "Dates of Rose Shows," for National (Maidenhead)," read "National (Manchester)."—D., *Deal.*

OUR GRANDFATHERS' ROSES.

IN 1799 Miss Mary Lawrence, teacher of botanical drawing, &c., published a large quarto volume containing ninety beautiful plates of as many Roses of that period, with a well-executed frontispiece of Roses drawn and coloured by herself. Many of the plates are faithfully and artistically finished, and the work as a whole compares favourably with the majority of the Rose illustrations of the present day, and is most interesting as showing the advance, or perhaps as some may say retrogression, which has taken place during the past eighty years in our still favourite flower. It is also interesting as containing portraits doubtless of some of the types of our modern Roses; and as it contains a few lost gems, and some which are not now often encountered, I am induced to note the most striking, although there is not one amongst them which would satisfy the modern exhibiting fancy. There is scarcely one which can be truly called full, except it be R. sulphurea, the old Double Yellow Rose. But perhaps there are those amongst your readers who can recollect and appreciate the large old red Damask Roses of forty years ago; even now I find charms in contemplating these Georgian belles.

Amongst the flowers depicted the following are the most attractive or interesting:—R. gallica, the Giant, semi-double, with petals quite as large and in colour resembling those of Anna de Diesbach, the individual blooms being not much less than those of a good specimen of Paul Neyron; the blush Damask Roses, Goliah (*sic*) and Imperial Blush, both nearly as large and fuller; R. turbinata, the Frankfort Rose, marbled red; R. gallica, the red officinal Rose, and Rosa Mundi, the old semi-double striped gallica with yellow centre; R. centifolia, the monstrous Hundred-leaved and the Dutch Hundred-leaved Roses, all of fair size. The miniature Roses De Pompon, De Meaux, and the double cinnamon Rose are also represented, and the following of medium or smallish size:—R. damascena York-and-Lancaster, white suffused with pink on one side and not striped as commonly believed; the white Monthly and the red Damask, R. centifolia; Pluto, semi-double, blackish carmine, of the Cardinal Patrizzi type; the Fringe Rose, the Cardinal Rose, the Shell, the Sultan, the Lisbon, and the Singleton Hundred-leaved Roses; R. provincialis, the Blandford or Portugal; the Childing and the scarlet and moss Provence; R. gallica, the marbled Rose; R. lutea and lutea bicolor, the Single Yellow and Austrian Roses; R. sulphurea, the Double Yellow Rose; R. alba, the Double White Rose; R. blanda, the Labrador Rose; R. pendulina, the Rose without thorns;

R. Carolina, the double Burnet-leaved and the double Pennsylvanian Roses; R. lucida, the single white China (?); R. rubiginosa, the double red Sweet Briar, the semi-dark Sweet Briar, Manning's blush Sweet Briar, also semi-double, the double mossy Sweet Briar, and the Royal Sweet Briar, and R. canina, the double Dog Rose, a very respectable-looking flower even for modern eyes. I notice also the double and single Musk Roses, the single and double Apple-bearing, the red, white, and blush China, the Burgundy, the great Maiden's Blush, and the Evergreen Roses. The Bourbon, Tea-scented, and Noisette types are unrepresented, and probably were not then introduced. I miss, too, one of the prettiest Roses of former days, Centifolia cristata, which is still a gem for bouquets.

It would be gratifying to many to know whether and where all these old favourites are to be found; and one is naturally led to wonder why the National Rose Society have not this year repeated in their prize schedule a class for Roses in commerce prior to 1840, as the offer last year brought forth I think more than one champion. To discontinue the prize after one trial is something like a railway company putting on a new train for a month, and then taking it off as unsatisfactory. The Society's reason, however, may be only a financial one; and as the aims of such an authority should be to encourage and develope all that is beautiful and sweet in connection with the queen of flowers, perhaps when the National Rose Society and the Roses see more sunshine than they have lately experienced, we may find Roses of the eighteenth century—our grandfathers' Roses—reappearing in the lists.—T. LAXTON, *Bedford.*

NOTES FROM MY GARDEN IN 1879.

HERBACEOUS PLANTS.

IN resuming my notice of the herbaceous plants that afforded me so much gratification last year let me say, in reference to Mr. Camm's observations as to the size of my garden, that he would be perhaps surprised at it, but not for its magnitude, but the reverse. I do not grow gigantic Lilies or huge Pæonies, but it is astonishing when one grows alpine and herbaceous plants how many may be grown in a small space. A rockery contains a large number of species, as the space each occupies is small, and in many cases, as amongst wild flowers, one springs up where the other dies down. I have quite a flourishing corner of Crown Imperials, while amongst them the white Japan Anemone Honorine Jobert has established itself; it is now springing up vigorously, while the stems of the former are decaying.

Geum coccineum flore-pleno is a bright and fine variety of the old well-known scarlet Geum, with double flowers. Gnaphalium leontopodium, the well-known Edelweiss, which some of the Swiss cantons have protected by special ordinances, is really a very easy plant to grow. I received a plant of it last year from my friend Mr. Hammond of St. Albans Court, and it is now flourishing; it is also easily propagated from seed. The Globularias are pretty, and trichosantha especially so. The Helianthemums (Rock Roses) are very showy, and have been increased in variety by hybridisation, so that they are to be had in many colours. I find a hot, dry, and sunny place to suit them. They soon increase in size—too much so for a small rockery, from whence I have had to banish them. The Rock Rose suggests the Christmas Rose, and of these the variety called maximus is the best, flowering earlier. Of Hemerocallis I need not speak as it is so widely known, its one great defect being its short life, the term Day Lily indicating that defect.

Hyacinthus candicans I have as yet only grown as a pot plant, but as it has proved itself perfectly hardy I shall hope to grow it out of doors this year. It is a very pretty plant, very unlike a Hyacinth, as the bells hang singly from long footstalks some inches apart. It is very graceful, and the single bells are very pretty for bouquets. It seeds freely and germinates quickly. I have a number of plants out in the open ground now from seeds sown last spring. Of the Hypericums I can recommend olympicum as a very neat pretty little shrub, not covering the ground as some of the larger kinds do, but very compact. I do not grow any of the garden varieties of Iris, beautiful as they are, but I have not space for them; but Iris reticulata is an early-flowering kind of great beauty, and I this year flowered well in a pot the very remarkable Iris iberica with its strangely veined purplish flowers. Iris Susiana I have failed to do well. Although I have grown for several years Lewisia rediviva I would not recommend it. It is very pretty, but it is difficult to grow I believe, and as it was remarked to me, the "rediviva" is the part of it one did not see. Lithospermum prostratum is a very pretty blue-flowered plant well known, while the British species purpureo-cæruleum is very striking and soon fills up any space in which it is planted. Lychnis alpina is very pretty with its rose-coloured flowers. Mertensia paniculata is a very pretty plant in a cool border; the flowering stems are about a foot high, with pendant clusters of a chaste porcelain blue at the extremity of the flowering stem. Of the Forget-me-nots, M. alpicola with its neat little foliage and brilliant blue flowers, and dissitiflora, I have found the best. Care must be taken that the latter does not overpower some of the other plants, as it seeds very freely, and the seedlings should be weeded out. I have not succeeded with Nertera depressa. Omphalodes verna is an old well-known Forget-me-not-like plant, very charming in its colour and strong in growth; and there is a charming new one, Omphalodes Luciliæ, which I have not yet grown. Opuntia Rafinesquiana I have had for some years, but have no success with it and must remove it to some hotter corner of the rockery. Of the smaller Phloxes I have grown Nelsoni and verna, early-flowering prostrate forms and very pretty. I have already alluded to the Primroses, but cannot say that I have found cortusoides amœna grow well in the open air. Pulcherrima, spectabile, and farinosa are well worth growing, and of the kinds I must add to my plants this year.

There is no greater favourite amongst my alpine plants than Ramondia pyrenaica. It has large, rough, leathery leaves, and the flowers, which are of a most lovely shade of mauve, are produced in great abundance. I have found that it likes quite a shady spot where it has little or no sun, and must be kept well watered in dry weather. I saw it growing in the greatest luxuriance at Mr. Hammond's at St. Albans, and my flowering plants have been obtained there. Rosa pyrenaica has established itself so completely in one part of the rockery that I shall have to watch it carefully. It creeps along under the soil and comes up in all sorts of places. I have twice tried Sarracenia purpurea, but have failed with it. Those bog plants are the most difficult to manage—Pinguiculas, Droseras, Asphodels, &c. If you make a place for them it is apt to get soddened and sour, while, unless they have a soft spongy bottom, they will not thrive. The Saxifrages, Sedums, and Sempervivums form a numerous and favourite section of rock plants, some being large and showy, others small and very pretty. Of the Saxifrages longifolia vera is undoubtedly the finest; unfortunately when it flowers there is an end of it. S. pyramidalis has long panicles of white flowers 18 inches to 2 feet in height; oppositifolia, an early dwarf-growing kind, when well established is most charming. Of the Sempervivums, although I am not successful with it, arachnoideum is one of the most curious, as is spinosum, almost like a Cactus, but I doubt very much the hardiness of the latter. Senecio pulcher is a grand border flower for autumn. The leaves are fleshy; the stems 3 feet high, with clusters of beautiful mauve-coloured flowers 3 inches across. It is a grand plant, although only a Groundsel. Silene acaulis, a beautiful little plant with mossy-looking foliage, on which the numerous rose-coloured flowers are sessile; I have not succeeded very well with it. Silene alpestris is very pretty and free-flowering, while Silene Schafta is a pretty autumn-flowering species. The Soldanellas are curious little things with thick leathery foliage and minute fringed flowers. Thalictrum adiantifolium is a very pretty foliaged plant, almost like the Maidenhair. The Golden-variegated Thyme must not be omitted from any collection of herbaceous plants. Trillium grandiflorum is a most interesting plant, and with its pure white flowers forms an attraction in any moist shady part of the rockery. Nor can I better close these rambling notes than by recommending the lovely Tropæolum speciosum as the most showy of perennial climbers, running up 8 to 10 feet high and covered with its brilliant vermilion flowers. Those who have once seen this growing in the luxuriance it does in Scotland are not likely soon to forget it. It has succeeded with me even in a southern aspect, and I do not think anyone need be afraid of trying it, especially if they can give it a northern aspect. I have omitted many things, but have selected those which I think the best, most easily managed, and generally useful.—D., *Deal.*

THE SNOWDROP TREE.

AMONG the numerous attractive and useful deciduous trees and shrubs for which the Old World is indebted to North America, few surpass Halesia tetraptera, the Snowdrop Tree, or as it is aptly and euphoniously termed in its native State of

South Carolina, the Silver Bell Tree. It is an old favourite in some gardens, but it is not so frequently nor generally seen as might be expected from its extremely ornamental character. In Miller's "Gardeners' Dictionary" it is related that seeds of this species were first introduced to England by John Ellis, Esq., in 1756, who received them from Dr. Alexander Garden, a physician at Charlestown. The tree is perfectly hardy, of medium size, and appears to thrive best in rather light soil in moderately damp or shady positions; seed ripens freely, from which or by layers the plant may be readily increased. The specific name tetraptera, signifying four wings, applies to the fruit, which has the four corners prolonged in a wing-like form. When thoroughly ripened the fruit is said to possess a very agreeable flavour. The specimen represented in the engraving

Fig. 67.—Halesia tetraptera.

was kindly sent to us by W. W. E. Wynne, Esq., of Peniarth, Merionethshire. We also recently noticed in Sir Henry Peek's garden at Wimbledon a remarkably fine specimen of what appeared to be a distinct variety of this Halesia. It was about 15 feet high, and differed chiefly in the greater abundance of the flowers, the fascicles or little bunches clothing the branches for a space of 2 feet or more. The flowers were also rather more bell-shaped or expanded, and viewed from below the thousands of pendulous little white flowers at once suggested the singular appropriateness of the American name, Silver Bell Tree. The seeds of this tree are slow in germinating, for they have been known to remain in the ground a year or more before showing any signs of life.

KINGSTON AND SURBITON HORTICULTURAL SOCIETY.—June 19th.

This Society, though established in a district comprising fifty thousand inhabitants, has nevertheless not been so prosperous as could be desired of late years; indeed it is generally conceded that but for the promptly applied energy of Mr. Moorman and his perseverance on behalf of the Society there would have been no

exhibition this year. A special appeal for support having resulted in the Committee being able to meet all liabilities and to commence the season with a slight balance in hand, it was determined to hold an exhibition, and to trust to a fine day and a good attendance to render the gathering a success. The day was fine; the Exhibition (which was held in the reading-room recreation grounds near the Surbiton railway station) good, and the attendance in the afternoon such as has placed the Society in a better position financially than it has been in for several years.

Besides prizes provided by the Society in nearly eighty classes, special prizes were offered by the President of the Society, C. D. Hodgson, Esq., Lady Peek, Sir Trevor Lawrence, Bart., M.P., and Mrs. Mackinnon; the Royal Horticultural Society's Knightian and Banksian medals had also a place in the schedule.

We can only glance briefly at the Exhibition, noting a few of the more prominent features. The plants were arranged in a large marquee; the fruit, what little there was, cut flowers, table decorations, and vegetables in a smaller tent.

The groups of flowering and fine-foliaged plants, arranged for effect in space not exceeding 100 square feet, in competition for the President's prize, were especially noteworthy. They were semicircular in form, which is, we think, the best mode of displaying such collections. The premier prize was awarded to Mr. Buckland, gardener to Mrs. Hodgson, Surbiton Hill, for a very imposing group composed of healthy plants, but arranged too smoothly—too much in the haycock style to be artistic. The second-prize collection of Mr. Watson, gardener to F. H. Bryant, Esq., Glencairn, Surbiton, decidedly displayed superior taste in arrangement, and the plants also were good in quality and well grown. The effect of well-flowered examples of Anthurium Schertzerianum, as seen through the fronds of Palms and the front plants of Pandanus Veitchii, Crotons, Cocos Weddelliana, new Coleuses, large Ferns, &c., pleasingly associated, rendered this group the first favourite in the estimation of critical visitors. The Judges had a difficult task to perform, and he must be a bold man who would pronounce such censors as Messrs. Baker of Coombe, Page of Dover House, and Kinghorn of Richmond in error on a question of taste. Mr. Crafter, gardener to the Rev. W. Finch, The Woodlands, Kingston Hill, had the third prize for a good group, but it had somewhat of a top-heavy appearance by the overpowering weight of a fine example of Cycas revoluta that appropriated about half of the disposable space.

The chief prize for nine stove and greenhouse plants was well won by Mr. Hinnell, gardener to F. A. Davis, Esq., Anglesea House, Surbiton, with healthy well-grown specimens averaging 3½ feet in diameter; and in the first-prize collection of Heaths the same exhibitor staged a splendid example of culture in Erica tricolor dumosa, 4½ feet in diameter and apparently faultless—by far the finest plant in the Show. In the class for six plants Mr. Croxford, gardener to Mrs. Dunnage, was the most successful exhibitor.

Ferns were represented by fresh healthy specimens, the principal prizewinners being Messrs. Hinnell, Atrill (gardener to C. J. Freake, Esq., Bank Grove, Kingston), Crafter, Watson, and Moorman. Mr. Watson also staged excellent Selaginellas, but not half of them were correctly named. Fine-foliaged plants were also good, especially those staged by Messrs. Atrill & Child, who secured the prizes. Caladiums were splendid, such as are seldom seen now-a-days. Mr. Gregory, gardener to F. J. Weymouth, Esq., Teddington; Mr. Child, gardener to J. Gray, Esq., Claygate, Esher; and Mr. Buckland, were awarded the prizes in the order named. Pelargoniums were only of moderate size, yet healthy and well suited for conservatory decoration. The principal prizes went to Messrs. Buckland, Croxford, and Watson. Fuchsias from Mr. Watson were tall and robust—5 to 8 feet high, but thin and somewhat deficient at the base. Gloxinias from Mr. Buckland were excellent—fine in flowers and foliage; and ornamental-foliaged Begonias of the Rex type were very fine from Mr. Waite, gardener to F. Dickson, Esq., Fairleigh House, Kingston. Dinner-table plants were not good, some being too large and others too small.

Amongst miscellaneous plants Mr. F. Sutton, Gibbon Road, Kingston, staged healthy specimens, including a rather small but charming example of Erica ventricosa magnifica; but the most important collection came from Messrs. Veitch, which included some of the Chelsea celebrities excellently arranged—a most attractive group, occupying one end of the stage with great effect. The corresponding end was artistically furnished by Messrs. Jackson and Sons with choice plants. These collections were much admired, as also was a remarkable collection of cut flowers sent by Messrs. Veitch from their adjacent Coombe Wood Nursery. Several boxes of Rhododendrons (magnificent trusses) had a most imposing effect, and very attractive were the Ixias and Irises.

In the dinner table decoration classes Mrs. Clay, Elm Villa, Kingston, easily won both the silver medals of the Royal Horticultural Society—the Banksian medal offered for one decorative stand, the Knightian for three stands. These were extremely light, elegant, and cheerful. The class for the best arrangement of flowers in soup plates brought out good competition, and the class was an excellent one. With moist sand, flowers, Ferns, and good taste, it is surprising how attractively soup plates can be furnished. Most of the arrangements were too close and bulky—a foot high, and through—the prizes being awarded to those which contained good and rather large flowers, thinly arranged and interspersed with Ferns. Messrs. Croxford & Buckland were placed first and second respectively; and Miss Russell, The Priory, Surbiton, third with a pretty basket-like arrangement of Clematises, scarlet Geraniums, and Ferns, a handle being formed of a spray of small variegated Ivy.

Fruit was limited. Mr. Child sent excellent Melons, securing the chief prizes and high commendation. Mr. Beard, gardener to A. Shand, Esq., Worcester Park, fine Strawberries; and Mr. Croxford small but good Black Hamburgh Grapes.

Vegetables were generally good, Mr. Child easily winning first honours with an excellent collection of twelve sorts. A good basket was disqualified as containing only ten sorts, two varieties of Cos Lettuces and two of Onions being included. Cucumbers were of varied merit; some good, others indifferent. The best brace was from Mr. Macpherson, gardener to S. Page, Esq., St. Leonard's Lodge, Surbiton—fine dark fruit with white spines named Surrey Champion, a selection, probably, from Sutton's Berkshire Champion. Mr. Watson had the second prize with Duke of Connaught. Some very good vegetables were also exhibited in the cottagers' classes.

The Exhibition was well managed, and the judging was quickly done. The best of all systems was adopted, counterfoil books as used by the Royal Horticultural Society being provided, and the South Kensington mode was carried out in its integrity.

PEACH AND NECTARINE LEAF BLISTER.

THIS disease attacks with more or less virulence the foliage of certain trees in particular situations every spring. It is so clearly owing to cold north-east winds blowing upon the tender half-grown leaves that to attribute it to any other cause is simply nonsensical. Cause and effect are patent to every intelligent observer—so patent that I should not revert to the subject were it not important to draw attention to the fact of the foliage of certain kinds possessing the property of hardiness so much in excess of others as to withstand the baneful effects of the scathing winds. Or, to put the matter in another and probably truer light, I may assert that some sorts of Peaches and Nectarines have more delicate foliage than others, the majority of trees upon open walls of a western aspect generally being unaffected by blister.

Of trees on a wall facing due south Lady Palmerston Peach is so badly blistered that the new growth is quite crippled. It has no fruit, nor is it likely to have any next season, for the tree has suffered so severely from blister for several years consecutively that it has assumed a weakly stunted habit of growth. This tree has borne magnificent fruit once or twice, but it never ripened; all which tends to show that it should have the protection of glass, of which it is certainly worthy. Walburton Admirable Peach is also much blistered and has very little fruit. Pitmaston Orange Nectarine has a little blister and a moderate crop of fruit. Stanwick Elruge Nectarine is only slightly affected and has an abundant crop of fruit, while those fine Nectarines Lord Napier and Balgowan are badly affected and have both lost all the fruit. Violette Hâtive in a snug south-west corner, and Rivers' White Nectarine on a west aspect, both have good crops and foliage quite unaffected by blister. An Early Beatrice Peach on the west also has no blister.

Two other walls, one facing the south and the other the west, offer an instructive sight just now. There are outer walls having buttresses far enough apart to afford space for a tree between every two buttresses, which it was thought would afford some shelter from cold winds, but they do not, most of the trees on the south wall being seriously affected with blister every spring. This year Nectarines Prince of Wales, Downton, and Pine Apple are all very bad, neither of them having hardly a sound leaf, and an abundant crop of blossom has proved altogether abortive. Prince of Wales is at the east end of the south wall, next it are the others, and then comes an Early Rivers' Peach with about half the foliage blistered and half a crop of fruit. Next it westward is a Belle Beauce Peach with a full crop of fruit and hardly any blister. Now, this fine Peach is a late variety of that king of Peaches Grosse Mignonne. The fact of its being so hardy is therefore doubly important, and to render this still more clear there is a Royal George Peach next it with all its foliage badly blistered and no fruit. Rivers' new Nectarine Advance is also growing freely on this wall without a trace of blister or blight of any kind upon its healthy foliage.

On the west aspect Albert Victor Nectarine is only slightly

affected, and the somewhat sparse foliage of Large Elruge Nectarine is quite sound. I am nevertheless disappointed with this last-named variety from its peculiar tendency to shed its wood buds; the soil may be faulty, and the tree shall be lifted and replanted in fresh soil. I shall meanwhile be glad to learn if other trees of it are so affected. Victoria Nectarine is badly blistered, and is more conspicuous from the fact of its standing between the Large Elruge and a flourishing tree of Early Alfred Peach laden with a heavy crop of fruit and with unblemished foliage. A little farther along the same wall Princess of Wales Peach and Early Louise are both blistered, the latter badly.

The whole of the Peach trees under glass have an abundant crop and clean healthy foliage. I mention this fact because one sometimes hears of blistered foliage upon trees so protected; it has been so this year, and I can assure those who complain of this, that had they only kept the ventilators closed during the prevalence of cold winds their trees would have had no blister. It is surprising how frequently we see instances of carelessness in this respect by routine men. Open go the ventilators at the same time every morning without a moment's thought about treacherous winds so long as the sun peers out. Certainly they have no right to complain of trees or plants that are unable to withstand the evil effects of such thoughtlessness. —EDWARD LUCKHURST.

CHERTSEY AND DISTRICT HORTICULTURAL SOCIETY'S EXHIBITION.—JUNE 10TH.

THE annual Summer Show of this Society was held in the picturesque grounds of Oatlands Lodge, Oatlands Park, the residence of Sir W. Drake, who had kindly permitted the Committee to add to the attractions of their Exhibition by throwing open to the visitors the magnificent grotto which was formerly the property of the Duke of York. The exhibits were arranged in three marquees, and for a local show were both numerous and good. One very pretty feature was the tent devoted to groups of plants, and arranged as they were in semicircles sloping up to the sides of the tent, the effect was excellent, and proved how much better such groups appear than when crowded in among other plants. Classes were provided for fruit, vegetables, and plants of all kinds, there being generally good competition.

The standard greenhouse plants were rather poor, the specimens being both small and deficient in flowers and vigour. The collection of six exhibited by Mr. Polley, gardener to H. Rodgers, Esq., Oatlands, contained several fair plants, and the first prize was awarded, but few of the others merited special notice. In the class for four Heaths Mr. Polley received the first prize, but not for very good plants.

Pelargoniums were rather more numerous. Mr. Povey, gardener to G. Gillespie, Esq., Oatlands Park, secured the first prize in the class for six show varieties, and also for the same number of fancy varieties, he being the only exhibitor in each class. Mr. Plowman, gardener to J. Wilks, Esq., Oatlands, was the only exhibitor of four tricolor Pelargoniums, and he obtained the premier award with fair plants, and he was also first with four bronze varieties. Mr. Taylor, gardener to J. McIntosh, Esq., Duneevan, exhibited six even and well-flowered zonal Pelargoniums, securing the first prize for them, and the second for six double varieties. Mr. Taylor's group of Liliums was an excellent one, and he well deserved the first prize which was awarded him. The plants were vigorous and the flowers good, especially Lilium Szovitzianum, L. umbellatum, and L. Hansoni.

In the class for six Caladiums Mr. Polley was placed first with healthy plants in good variety. For four plants Mr. Young was first with well-coloured plants, and Mr. Povey second. The latter was first with six vigorous Dracænas, followed by Mr. Polley and Mr. Cornhill. Some extremely good Gloxinias were staged, particularly the first-prize collection of six from Mr. Cornhill; the flowers were unusually large, well formed, and richly coloured.

Foliage plants were fairly represented, and in the class for six Mr. Young exhibited good specimens of average size, but strong and healthy. Croton Wiesmanni was very bright, and Alocasia metallica excellent. Mr. Cornhill came second with fair plants. In the class for four Mr. Povey, Mr. J. Smith, and Mr. G. Masters were placed in the order named with small but clean specimens.

Ferns were in very good form, particularly the hardy varieties, which were delightfully fresh. In the class for six exotic species Mr. Cornhill secured the first prize with handsome specimens. Mr. Young was a close second, and Mr. Polley third. For four plants Mr. Williams, Mr. Gubbins, and Mr. Smith were awarded prizes in the order named. In the two classes for hardy Ferns the competition was strong, for there were eight entries. Mr. Millican was first, his specimens being very healthy. Mr. Cornhill and Mr. G. Young followed with good plants. The four were also well shown, Mr. G. Masters taking the premier prize, Mr. Povey the second, and Mr. James Gray the third.

For a collection of twelve miscellaneous plants Mr. Polley was first with a group including good specimens of Stephanotis floribunda and Rhynchospermum jasminoides. Mr. Cornhill was second with fair plants. For a collection of eight Mr. Povey was placed second, and Mr. James Gray third with specimens of average merit. At one end of the long marquee containing the bulk of the plants was a beautiful group sent by Mr. B. S. Williams, and at the other end a tasteful arrangement of greenhouse and foliage plants from Messrs. Jackson of Kingston.

In the small tent appropriated to the groups for which prizes were offered there were eight competitors, or four in each class. For a large group (7 feet by 14) Mr. Cornhill was first, his group being so elegant and light that it attracted general admiration. Mr. Povey came next in order with a collection of graceful specimens, Mr. Polley being third, and Mr. Russell fourth. The smaller groups (10 feet by 5) are very pretty, particularly Mr. Plowman's premier group, in the centre of which there was a fine Lilium auratum that loaded the air with its fragrance. Mr. Masters was second, and Mr. Millican third. A few cut flowers were exhibited, and some tastefully decorated epergnes and vases, but not of sufficient importance to call for special remark.

Fruit was scarce and somewhat indifferent with the exception of a dish of extremely good Sir Charles Napier Strawberries from Mr. Masters, very large and well ripened. The first prize was most deservedly awarded. For a brace of Cucumbers there were thirteen competitors, the exhibits being very good. Mr. Cornhill was placed first; Mr. Thatcher, gardener to H. Payne, Esq., Chertsey, second; and Mr. Lloyd, Brookwood Asylum, third, all staging even and handsome fruits. Vegetables do not call for special comment.

Mr. Rawlings, the Secretary of the Society, arranged the several exhibits in excellent order, and the general appearance of the Show was highly creditable to him.

During the afternoon the Exhibition was fairly well attended, and the groups before alluded to were evidently the centre of attraction. After passing through the tents many of the visitors availed themselves of the opportunity to inspect the famous grotto, and were amply repaid for their trouble. This artistic piece of work is said to have cost £40,000, and twenty years were occupied in its construction.

THE IRREPRESSIBLE SPARROWS.

"MUCH is said about the mischief done by sparrows," writes "S., *Cheshire*," in the Journal of the 12th. More, however, remains to be told, if it is permitted to add other experiences corroborative of the capriciousness of these lively persecutors of garden products. My Crocuses have frequently suffered. This season they were passed by; but the Primroses and Polyanthuses excited the anger or playfulness of the sparrows to such a degree that it was difficult to make out sufficient trusses or blooms to make up what was wanted for indoors. Pink or red blossoms appeared to attract them most; they were torn, dragged about, pecked at—in short, mercilessly mutilated.

More serious still was the destruction of the Apricot blossoms, which last year had not been molested. This year, however, a tree on the house—netted indeed, but still studded here and there with spurs breaking through the meshes—was morning by morning visited by the little varlets in question, buds and blooms picked and broken off strewing the ground. Now that the net has been removed and the too scarce fruit exposed it is doubtful whether any can escape the pecking and dabbing of the ruthless pests. Singularly enough cook came indignantly to me as I was preparing these lines to know if I could give her anything to keep off the sparrows from her Rose tree (a Gloire de Dijon) on the back wall outside the larder window, which tree is in amicable rivalry with one at the study window, as to where the first Roses should blow. "They have been and picked off three or four buds clean off, and nipped ever so many more," set forth the little woman. "They can't be hungry; I often give them bits, and they can't come for green fly, for the tree has not any on it," and I go and see with my own eyes that the sparrows have broken off many buds from Gloire de Dijon; and some Maréchal Niels, well forward on a summer wall, have shared the same fate. That "they are enchanted to do mischief," and no divination or foresight, not even the destruction of their nests permitted to our children, appears to diminish their numbers or hinder their vexatious and expensive pastimes.—A. M. B.

WORK FOR THE WEEK.

KITCHEN GARDEN.

IF not already done sow Parsley at once, and where it is much in request during winter a pit or two should be sown to be covered with glass in cold weather. Plants from former sowings should

be transplanted in single rows, assigning to some sheltered sunny situations, such as the base of a wall, where if needed protection can easily be afforded in severe weather; but others should be planted in pits, so that protection, and if need be heat, can be afforded in winter. Plants not transplanted should be thinned to about a foot distance apart. Small sowings of Turnips will require to be made about once a fortnight, also Spinach, Radishes, and Lettuce, as there is less danger of a break in the succession when the sowings are frequent. Plant out Leeks in well-manured trenches to admit of earthing-up. If the plants are in beds in drills they should be thinned to a foot distance apart, and can be earthed from the spaces between as for Celery grown on the bed system. Peas of the early kinds may yet be sown, also French Beans in a warm place. If Cabbage stumps to give a supply of young heads in autumn are not already reserved they should be, as the results are better than those obtained by planting young plants to come in at that time. Continue to earth up the most forward Celery, and plant for succession. Early Horn Carrots may yet be sown, as they are useful late in the season. No unnecessary delay should elapse in effecting a clearance of the ground as the early Peas are over, forking the ground over for Broccoli, but applying no manure, as they winter more safely than when planted in freshly manured ground. Cauliflowers for late summer use should be planted with as little delay as possible, and a good breadth put out of the Tom Thumb varieties of Savoy, which come in early in autumn and are tender and good. They need not be planted more than 15 inches distance apart. Attend to nailing and tying up Tomato plants as they advance in growth, removing all side shoots when the requisite number of fruiting shoots are obtained. Train and thin out Gherkin and ridge Cucumbers, stopping the growths as required, watering and mulching in case of dry weather. Weeds must be kept under; of all things they grow the fastest, and where hoeing is not practicable owing to the wet weather hand-weeding must be resorted to. Keep the surface soil stirred about crops which are not mulched, maintaining the strictest order, which is too little regarded in this department.

HARDY FRUIT GARDEN.

The prospect of fruit as evidenced by the bloom is not likely to be realised. Pears are dropping in quantity, and in many instances the crop will be nearly *nil*, and in most places light. Of the kinds which have set fairly are Jargonelle, Clapp's Favourite, Williams' Bon Chrêtien, Comte de Lamy, Seckle, General Todtleben, Hacon's Incomparable, Beurré Diel, Van Mons Léon Leclerc, Beurré Langelier, Beurré Bachelier, Glou Morceau, Jules d'Airolles, Bergamotte Esperen, and Passe Crassanne, with a sprinkling on about a dozen more varieties. Plums are likewise dropping, notably Green Gage; the crop being heavy of Prince of Wales, Jefferson, Kirke's, and Coe's Golden Drop. Cherries are also dropping, but in most cases the crop will be fair. Peaches and Nectarines are not swelling as we like to see them, and without a tropical summer will be worth little. Apricots are a very heavy crop, especially Moorpark, St. Ambroise, Oullins Early Peach, Hemskirk, and Kaisha. Apples appear to have set well. The crop of Black Currants is good, Red Currants enormous, Gooseberries very variable. Raspberries will be abundant, and Strawberries never perhaps were better.

Preparing Strawberries for Forcing.—Runners of the last will be late this season, but the young plants (runners of last year planted in July) will soon afford runners for layering in pots for forcing or planting purposes. The first runners are far the best for any purpose, and to expedite matters should be layered in pots so soon as one leaf is produced and the second showing, the roots being then pushing. Three-inch pots are convenient to layer them in, turfy loam rather heavy with a dash of bone dust, about a twentieth part, forming a suitable compost. It should be pressed firmly into the pots, a slight hollow being made in the centre to receive the runner, securing it in position with a peg of wire, which is preferable to "stone laying." The pots may be about half plunged to maintain them in position and save watering. The runners must be regularly watered, and will soon fill the pots with roots, when they should be detached, placed behind a north wall for a few days, and then potted in the fruiting pots, 5-inch pots answering very well for early forcing, as with the roots restricted the leaf growth is not only less but the crowns mature earlier. For later work 6-inch and 7-inch pots are sufficiently large. La Grosse Sucrée, Vicomtesse Héricart de Thury, Sir Harry, President, Sir Charles Napier, James Veitch, and Dr. Hogg, with British Queen and Cockscomb, are excellent for succession. The two first are certain setters and sure swellers early in the winter, Sir Harry and President being admirable for starting after January where gentle forcing is practised; the others have large fine fruit of high quality, and are suitable for medium and late forcing.

The stopping and nailing or tying-in of wall trees generally should be proceeded with as quickly as possible, laying in a sufficiency of young shoots to fill up or extend the trees where necessary. In stopping the foreright and other shoots it is well not to do so nearer the base than three or four leaves, as if cut closer the trees will start into strong second growth instead of forming stumpy growths or spurs. The present cold and sunless weather is favouring the spread of insects, particularly aphis. There is no better remedy than to syringe with diluted tobacco juice, one pint to a gallon, to which may be added 2 ozs. soft soap. Nicotine soap is also a valuable insecticide, 2 ozs. to the gallon effecting a clearance of aphis. Continue to remove the blistered leaves from Peaches and Nectarines. Bush and pyramidal, also espalier Pear, Plum, Cherry, and Apple trees should have attention in stopping, similar remarks applying to these as to wall trees—that is, not pinching too closely, yet keeping the trees thin so as to admit light and air to the centre. Trees that are carrying a full crop and are not over-vigorous should have a mulch over the roots of some short manure, giving a good watering if necessary before its application. The mulching will attract the roots to the surface, furnishing them with active feeders. The necessity for mulching and watering is more urgent in shallow and loose soils than in those of a more tenacious character. In heavy soils mulchings are useful in dry weather to prevent the surface cracking. Bush fruits should have the shoots stopped back where the growth is overluxuriant, but where the crop is abundant such stopping is not needed. Strawberries so soon as they show colour must be netted to save them from the birds. Raspberries should be mulched and well watered if the weather be dry.

FRUIT HOUSES.

Melons.—If a second crop is not to be taken the houses and pits as they become cleared of their crops should be cleared of the plants, removing the old soil; and where bottom heat is furnished by fermenting materials a portion of that should be removed and a little fresh hot dung worked in, which will revive the bottom heat sufficiently for the young plants. The house, &c., must be thoroughly cleaned, as the after-success depends in a great measure upon a good start. Plant on hillhocks rammed well down, watering at planting, and if the weather be bright shade for a few days. Maintain a moist atmosphere. Although artificial impregnation of the blossoms is not now so necessary as early in the season, yet it must be resorted to every day after the pistillate flowers are fully expanded, and when a sufficient number are set and swelling do not delay the earthing-up of the roots. If there is any difficulty in getting the flowers to set in frames apply good linings, and admit air freely, leaving a little on at night so as to prevent the deposition of moisture on the blossom, it being important that the pollen be dry and the stigmas not destroyed by moisture. Do not overcrowd the foliage; and though it is not desirable to use the knife much during the setting period, yet keep the growths regulated so as to admit light and air. Watering should be guarded against during the setting, yet the foliage must not be allowed to flag. Do not allow the leaves or growths to overhang the collar of the plants, and if canker set in check its progress by rubbing freshly slaked lime into the parts. Cracked fruit must be looked for and guarded against by maintaining a drier condition both at the roots and atmosphere when the fruit approaches ripening. Plants swelling-off the fruit should be watered about twice a week or oftener according to the weather, maintaining also a moist yet ventilated atmosphere.

Pines.—Unless the temperature falls below 70° in the fruiting house apply no artificial heat, and the atmospheric conditions thereby secured will be much more invigorating and suitable to the development of the plants and fruit. The bottom heat, however, must be maintained at 80° to 90°, which will necessitate occasional fires, especially where fermenting material is not employed, such as tan, to any great depth. Shallow beds are liable to sudden fluctuations in temperature, rendering the roots more susceptible of injury from lack of attention either in watering or firing. Beds containing from 2 to 3 feet of plunging material from the top of the pots are in all respects better than shallow beds. Ventilation and watering will be the chief points requiring attention, which must be given as advised in former calendars.

PLANT HOUSES.

Stove.—The old Jasminum Sambac flore-pleno is seldom seen, which is remarkable, as it is one of the most fragrant and free-flowering of plants. The flowers are white, not large, and are useful for cutting. The plant is of rather straggling habit, but trained upon a trellis it continues growing and flowering for a long period. Turfy loam with a little leaf soil suits it admirably. Cuttings strike readily in gentle heat, taking them off with a heel and inserting in sandy loam, growing-on the young plants in heat, pinching the growths to induce them to break, which being trained as they grow horizontally will induce a well-furnished habit. Young plants of Stephanotis floribunda growing on for next season's flowering should have the shoots trained near the glass, as it is necessary that the growths have thorough exposure to light and sufficient air to solidify the growth as it is made to insure flowering. No after amount of drying will induce plants to flower that have been grown in the shade and with little air. To keep the plants close, hot, and moist is to render the prospect of bloom remote. Clerodendron Balfourianum after flowering may, if the plants are small or require more pot room, be transferred to larger pots, employing turfy yellow loam with good drainage. The plants should then be placed in heat and encouraged to make growth by frequent syringings, training the

young shoots on strings in the full light so as to secure well matured shoots. Plants that are as large as required may after flowering be placed in a greenhouse or other house in the full sun, affording no more water than will keep them from flagging. Æchmeas discolor and miniata are fine in late summer and autumn, flowering for six or more weeks. Single crowns are best grown in about 7-inch pots, employing a compost of lumpy loam with a free admixture of sand, and some pieces of charcoal or crocks intermixed, draining the pots well. They do equally well in fibrous peat. A position on shelves near the light is most suitable for them. Tillandsia Lindeni with its channelled, narrow, gracefully curved leaves, and its blue flowers produced in succession from its lengthened scapes, is beautiful and of easy growth, doing well in moderate heat and not overpotted. Francisceas if straggling may be cut back after flowering, and be induced to break by placing them in the stove, syringing them freely, and when they have broken they may be repotted or top-dressed as may be considered necessary. Any leggy plants may be shortened, and when a couple of inches of fresh growth is made turn the plants out of the pots, reduce the balls to about one-third, and place in pots one-third less in size, employing fibrous loam with a little leaf soil and sufficient sand to keep the soil open. They also do well in peat. The plants should be kept in a brisk temperature, and by autumn they will have made and ripened strong growths that will flower more freely and stronger than young plants. Amaryllis should be encouraged to make a strong growth by copious waterings and syringings; they do well in light pits during the hot summer months. Gloxinias should be supported with liquid manure, and be in positions near the glass with the sun's rays broken at midday by a slight shade. Any plants in small pots required for late flowering should be placed in the blooming pots without delay. Ixoras that flowered early if placed in brisk heat will push strongly and flower again, coming in very useful in autumn. If the pots are filled with roots weak liquid manure may be given once a week, but it must not be too strong or the roots will be injured. I. aurantiaca and I. coccinea produce heads freely in autumn, and are very useful for cutting.

TO CORRESPONDENTS.

NATIONAL ROSE SOCIETY'S SHOW (*C. J. D.*).—We have forwarded your letter to the Honorary Secretary of the Society. Possibly you did not address your letter correctly, or by some other cause it did not reach the hands of the Secretary in time for you to have a reply by the 23rd inst. The Show is advertised in the present issue of the Journal.

CLASSIFICATION OF EXHIBITORS (*George C. Ramsden*).—A market gardener is one who gets his living by market gardening—that is, by growing and selling his garden produce. An amateur who may sell his surplus produce is not a market gardener. A gentleman's gardener is one who is employed to manage the garden of an amateur, and who is exclusively in that amateur's employment. A jobbing gardener who works in a garden one or two days a week is not a gentleman's gardener. An amateur is one who either employs a gardener constantly, or occasionally, or not at all, but does the work himself. When prizes are offered in schedules these three classes of amateurs should be specified. A cottager ought to be a labourer or artisan who cultivates his garden at leisure hours. A small retired tradesman living on his means, though he lives in a cottage, is not a cottager in the sense required in a horticultural prize schedule.

ROSES UNHEALTHY (*Hallamshire*).—The foliage of Roses grown in pots will turn yellow and drop off if the soil on the one hand is permitted to become saturated, or on the other is allowed to become too dry. See that the drainage is efficient, and give water, clear soot water, occasionally, as often as it passes through the soil freely. Your plants also require more air. Open the front ventilators and apply sulphur to the foliage immediately you see mildew. Do not keep the atmosphere of the house too moist, but let the floors, stages, &c., become quite dry once a day.

YOUNG VINES UNHEALTHY (*Kittie*).—The Vines would have succeeded better had they been planted in a narrow border inside the house, the roots having access to the outside border through arches in the wall. Still they ought to do well planted outside. You are right in your surmise, the roots are too deep and too cold; perhaps, also, the rods were not sufficiently shortened. The covering ought to have been removed in April, leaving only about 5 or 6 inches of soil and manure over the roots. To plant in the autumn and carry a crop next year can be done, but we do not recommend the practice, as such early cropping is prejudicial to the Vines. Were you to obtain strong short-jointed Vines and plant them now in a growing state, not breaking the balls of soil containing the roots, the Vines with good attention would reach the top of the house this year, mature their wood, and be in condition to carry a few bunches next year. To do this, however, they must be strong to begin with, and be planted at once with great care in good soil.

RANUNCULUS TUBERS (*F. W.*).—The tubers should be taken out of the ground when the foliage decays, and be stored away in a moderately dry position. Stapelia europæa is synonymous with the Piaranthus Gussonianus of Don, and is a native of Sicily.

DIPLACUS GRANDIFLORA (*Mrs. Day*).—The culture of the plant of which we give the name is as follows:—If raised from seed or cuttings the young plants must be potted in a compost of peat, loam, and sand, good drainage being provided, pots of moderate size being preferable. A greenhouse temperature suits the plant admirably, and during the summer it also succeeds well in a cool frame. Watering must at all times be carefully attended to, as it very frequently damps off through carelessness in this respect. The plant is subject to the attacks of aphides, and requires to be fumigated on the first appearance of the insects, or it will soon become unhealthy.

SEEDLING PELARGONIUM (*J. Brown*).—In our reply to you last week we stated we were "not sure that the variety is quite distinct from others in cultivation." We have since seen the variety which we thought very closely resembled yours, and find that Beauty of Kingston, raised some years since by Messrs. Jackson of Kingston-on-Thames, and your seedling are identical. You cannot therefore give your plant a name as a new variety. Beauty of Kingston is a popular light variety for decorative purposes.

ROSES IN THE WEST INDIES (*Emigrant*).—The flowers are not equal to those grown in Europe, but the trees produce flowers three times in the year.

SHOW PELARGONIUMS (*Busy*).—Cuttings struck this spring can scarcely be expected to flower this summer beyond, perhaps, producing a small truss or two; but if well managed they will make fine flowering plants for next year. The plants cannot have too much light and air. A shelf near the glass in a cool greenhouse or a cold frame will be suitable for them. They must be grown in small pots, 5-inch pots being quite large enough this year, and must have all the sun possible. Towards the end of July they may be placed in a sunny position out of doors, in order that the growth become matured. Early in August cut them down, leaving only about three or four eyes at the base of each stem, the tops being made into cuttings and inserted. When the cut-down plants have grown about half an inch shake them out and place them in smaller pots, keeping the plants rather close for a week or ten days in a cold frame, then admit air freely, and shift them into larger pots when the roots are active. Pot firmly, employing good loam and a little decayed manure. The plants may be wintered on a shelf in the greenhouse, the shoots being tied out and stopped as required to keep the plants dwarf and bushy; not, however, pinching the growths after March, or fine trusses will not be produced. The plants must be kept scrupulously free from insects at all times, or much of the labour and care bestowed in other respects will be wasted.

CLIMBING PLANTS FOR A GREENHOUSE (*Scotch Thistle*).—Four plants will be quite enough for a wall 18 feet long. Of those you mention we prefer Hoya carnosa, Lapageria rosea, Mandevilla suaveolens, and Maréchal Niel Rose.

SOIL FOR A BOG BED (*Somerset*).—Instead of the turf you mention procure a sufficient quantity of sweet fibrous peat; if in the form of sods so much the better. See that the water does not actually cover it, and is yet within 2 or 3 inches of the surface; and you need not use sphagnum at all, for soil so treated is pretty certain to become mossy.

WINE AT THE CAPE OF GOOD HOPE (*N. Jacobi*).—We think as you have such a knowledge of wine-making in Spain and France that you will succeed in producing an improved wine at the Cape. Its present inferiority is attributed by Sir Arthur Cunninghame, its former Lieutenant-Governor, to the Vines being excessively irrigated, to careless picking the Grapes, and stopping the fermentation prematurely. A company has been established at the Cape for the purpose of improving the wine. Very fine black Grapes are retailed at 1*d.* per lb.; but you must bear in mind that at Port Elizabeth the Vine will not flourish, although it succeeds admirably at Natal.

TODEA UNHEALTHY (*C. W. Nutfield*).—Your plant very probably is Todea superba, for we do not know the one you mention. It should be turned out of the pot, good drainage being provided, and carefully repot the plant in fresh turfy peat and sand, then place it in a cool, close, well shaded house, and supply water moderately until fresh growth commences, and then water liberally, syringing the young fronds frequently. Todeas require a cool moist atmosphere, but anything approaching stagnation must be carefully avoided.

FUCHSIA (*G. Hardy*).—Your Fuchsia is a good old foreign variety, "Sedan." It is described in Mr. Cannell's catalogue on page 46, and is grown very extensively for market.

ERECTING GARDEN WALL (*J. E.*).—It is impossible to give even an approximate idea of the cost, as the prices of bricks vary so much in different districts. Your proposed request for tenders will do very well, stipulating for sound bricks, and mortar composed of good sand and lime. Two tons of sand and one of lime make mortar which sets sufficiently hard for garden walls.

COLOURS OF PELARGONIUMS (*Querist*).—Mrs. Turner, magenta pink; Acme, salmon; Harry King, bright crimson; Madame Rendatler, double mauve. The others we do not know.

OBTAINING IMPRESSIONS OF LEAVES (*J. Charters*).—Several methods are known, but most of them are somewhat intricate and not always satisfactory in the results. A simple plan, but one that requires a little practice to perform it efficiently, is the following:—Lightly coat the surface of the leaf of which a copy is desired with ordinary printer's ink, and then place the leaf between two sheets of white paper and press heavily and evenly, and provided too much ink was not applied a very fair representation will be produced. Another mode is to cover one side of a sheet of white paper with olive oil, then fold the paper in four, placing the leaf between the second foldings. After pressing remove the leaf and place it between two clean sheets of paper, the impression thus obtained being dusted with black lead or charcoal, a little resin being added to fix the colour.

TOMATOES UNDER VINES (*Isle of Wight*).—You cannot do better than follow Mr. Muir's advice. The soil in which you grew the plants was no doubt too rich. If you grow them in poorer soil until the fruits are formed and then support them with liquid manure, you will probably, especially as the roof is not densely shaded, obtain fair crops of Tomatoes, but not equal to the heavy crops you obtained in an unshaded house.

TOBACCO WATER (*Armiger*).—Tobacco water as usually sold by chemists should be mixed with about five times its volume of soft water, and at that strength you may syringe your Rose trees with safety. Try yours at that strength, and if it does not kill the insects make the solution a little stronger.

SHOW BOX FOR ROSES (*H., Bristol*).—For twenty-four blooms the length should be 4 feet, breadth 1 foot 6 inches, height at back 6 inches, height in front 4 inches.

HEATING SMALL GREENHOUSE (*J. Madeley*).—One of the small upright slow combustion stoves, which you will find advertised in our columns, will be the best for a small house such as you describe.

BLACK CURRANT BUSHES DYING (*W. B. H.*).—Your Currant bushes have been devoured by insects, the Currant aphis, many hundreds of which were clustering on the under sides of the leaves on the shoots you have sent. Syringe the trees thoroughly with soft soap and tobacco water, dissolving 2 ozs. of soap in each gallon of water, adding to that quantity half a pint of strong tobacco liquor. If some of the worst shoots can be dipped in the solution the remedy will be more effectual. The syringe must be directed

to the underneath side of the foliage, as it is there where the insects are congregated.

BLACK HAMBURGH GRAPES (*M. M.*). — Under good management the Grapes will hang on the Vine until January or February, but care must be exercised to remove any berries that become mouldy.

MUSHROOMS FAILING (*W. T. W.*).—You do not say how you prepared the beds, so it is difficult to assign a reason for your non-success. Possibly water has been too liberally supplied; the temperature mentioned is suitable, and in the meantime we advise you to only apply sufficient water to maintain the beds in an equably moist condition. There is nothing unusual in the appearance of the Odontoglossum you sent.

NAMES OF PLANTS (*H. R. C.*).—Judging from the fragmentary specimen you have sent we think your plant is Ornithogalum stachyoides. Can you give us any particulars about it, whether it is hardy or not? and can you send a perfect specimen? (*J. Byron*).—Magnolia glauca, a hardy deciduous tree introduced from North America nearly two centuries ago. (*St. Honoré*).—Amaryllis aulica. (*A Novice*).—1, Andromeda calyculata; 2, Polygonum Bistorta; 3, a species of Geranium; 4, Veronica gentianoides; 5, Iris graminea. (*J. P. H.*).—Calycanthus floridus. (*Berley*).—Calycanthus floridus. (*A Young Gardener*).—The pink flower is a variety of Hesperis matronalis, the common Rocket. The Fern resembles Onychium japonicum, but the specimen was rather withered. Specimens should be sent in small boxes and packed so as to arrive in a fresh state. The numbers attached should be on the outside of the strips, so as to be seen without untying. (*Gardener's Wife*).—The plant is Asperula odorata, the Woodruff. We do not think the moss is the cause of the injury to which you allude. (*M. M.*).—The blue flower is Veronica campestris, the white one Chrysanthemum leucanthemum; the other is a species of Ranunculus, but the specimen was insufficient for identification. (*J. H. W.*).—Diplacus glutinosus.

THE HOME FARM:

POULTRY, PIGEON AND BEE CHRONICLE.

SUBURBAN VILLA FARMING.

FARMING under this cognomen differs not only in extent but also in the objects aimed at. It has, however, features in common which distinguish it but little from home farms in general, and villa farms may not inappropriately be styled home farms in miniature. The home farm as we usually treat of it is considered as connected with the residential property of noblemen or gentlemen, and as not only representing its extent but also the wealth and means of the proprietor: its object being generally the furnishing of supplies of the necessaries as well as many of the luxuries of life for the establishment and household of the owner. But whilst we speak of the nobleman's establishment with its hundreds of acres of park, pasture, and arable land, its herds and flocks, and its cleverly designed and well-kept homestead, we must on the other hand in referring to the subject before us allude to a comparatively neat and convenient residence as required by retired tradesmen, commercial men, or gentlemen whose object is the enjoyment of the healthy position of a suburban villa with pastures and occasionally arable land attached, together with its garden, orchard, and pleasure grounds, with a compact and convenient farmery for the healthy accommodation of all the live stock kept whether for pleasure or profit.

To illustrate our subject we will take a residence with from a few acres of ground up to twelve or fifteen acres of grass and some arable land. As these suburban properties are to be found in every district in the kingdom, including of course the variations of soil and climate peculiar to the locality, it is no easy matter in treating of this subject to adapt our recommendations and make them suitable under varying circumstances; still, we must endeavour to meet as nearly as possible the requirements of the majority. We will suppose that the proprietor or tenant, as the case may be, aims at obtaining as much of the pleasures of a country residence as it will afford. The tastes and enjoyments of people vary so much that whilst some are satisfied with a fertile garden, orchard, and pleasure ground, others require pasture and cultivated land in addition, where cows can be kept, and a paddock also for a nag horse to exercise in. We will therefore lay before our readers some recommendations for the management of a twelve-acre farm. We will suppose the villa and offices, the walled garden and gardener's cottage with farmery attached, including also the orchard and pleasure grounds, to occupy two acres; thus we have left ten acres, two of which may be cultivated for the purpose of producing vegetable and other produce for the animals kept. The remaining eight acres of land being in pasture may be fenced-off with flat-barred iron fencing into either two or four divisions according to circumstances. The treatment of the grass land will naturally be of primary importance. If it should be strong cold land it may require draining, chalking, or liming, boning and manuring, town manure—consisting principally of ashes—being the best, with occasional dressings of 2 cwt. of nitrate of soda per acre. In case, however, the subsoil of the pasture should be gravel or sand it also may require chalking or liming and dunging, consisting of yard manure in compost with clay or strong soil, and an occasional dressing of Peruvian guano of 2 cwt. per acre. The above-named management will apply with equal force to soils nearly allied to those above named, such as red loams or other strong soils on the one hand, and light lands upon chalk or stone brash on the other. If, as sometimes happens, we meet with pastures upon naturally fertile soil, such as are to be found in the vales in almost every county, then a dressing of home-made manure, compost, or artificial manures about once in two or three years is all that will be required to keep the pasture in a productive state, whether it is all fed by cows or a portion cut for hay or soiling cattle. It must be borne in mind, however, that situated as such grass land will be it must be kept in good appearance on account of its contiguity to the residence and pleasure grounds, which should adjoin it and form a pleasant prospect from the villa. In order to keep a good face upon the pasture, weeds, such as thistles and docks, should be continually rooted up, and whilst feeding with cows the solid droppings should be collected and taken to the manure heap every two or three days, because when the dung is allowed to remain the grass afterwards is sure to grow in irregular bunches. These bunches of grass are very unsightly, and when they occur they should be cut off occasionally with the scythe, not only for the sake of appearance but to allow the succession of grass to come with regularity and enable the animals to eat it, which they will refuse to do if not properly attended to. Again, when manure is laid out it should always be spread from the carts and not laid in heaps as is too often the case, for we have seen manure and compost lay in heaps long enough to destroy the grass during last autumn and winter upon some nice pastures attached to a villa.

The two acres of arable land required to produce vegetable food for cows, horses, &c., will next demand our attention, and in its cultivation we shall endeavour to recommend a rotation for cropping which shall supply a sufficiency of green fodder in the spring and summer months, as well as roots for consumption in the winter. Before stating the crops to be cultivated it may be well to consider what power shall be employed, and as there are two acres to be cultivated we calculate that a single horse would do all the work, as well as the odd work on the farm, such as carting purchased hay and straw, manure, earth, and all work appertaining to the neatness of the farmery and the land as a whole. A light one-horse plough, a strong horse hoe capable of being used as a scarifier as well, an iron harrow, a narrow iron ring roller about 5 feet in width, also a light iron cylinder ball roller about 7 feet wide, a light rave cart, and a light tipping dungcart, also a light one-horse drill 3 feet wide, will be nearly or quite all the implements required for horse labour. The horse should be an active strong gelding about 15 hands high with short legs and deep in the body, in fact the old Suffolk Punch stamp as nearly as possible, and if well fed such a horse will do all the work if used and managed judiciously. Some of our labourers who years ago left us at times and took to market gardening never used more than one horse, which was strong enough for work upon the land and active enough to carry the produce to the town market and to take home a ton weight of town manure on returning; and for a number of years on our own farm we only used one horse to the plough or the light scarifier in all the lightest summer tillage.

In setting out the two acres of land we would crop it in a four-course rotation of half an acre each. The crops we should recommend are mangolds, cattle parsnips, white Belgian carrot, and cattle cabbage; Champion Drumhead and large Drumhead Savoy being the best. The mangold to follow a crop of rye cut for green fodder or for straw as soon as it comes into ear, the carrots to follow trifolium cut for green fodder, the cabbages to be planted and follow Italian rye grass cut twice for green fodder, the Hollow-crowned cattle parsnip to be sown early after a winter fallow, to be dug a full depth with steel forks in the early winter. The carrot crop following the trifolium sown after the parsnips would benefit by the same deep culture; in fact on the rotation being completed the whole of the arable land would have been fork-cultivated, greatly to its improvement in any soil where properly manured and otherwise tilled. We do not recommend the growth of any hay upon either the arable or pasture land, because in considering the limited extent of the labour establishment it would be cheaper to buy it, and straw for litter also.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—At the time we write there is no horse labour which can be done with advantage upon the majority of soils. Large tracts of land intended for a crop of Swedish turnips will have to be held over and sown later on with the Scotch Yellow Hybrid turnip, otherwise the common turnips; and where the land is in

process of cleaning it is impossible at present to work out the couch and weeds free of the soil, much less to be able to burn them. In such cases as soon as the land is dry and firm enough to bear up the horses and carts it is best to fork the couch together and cart it away to heap, there to lie and rot for future use, as it makes good dressing for meadow land. The interculture of root crops such as mangold, cabbage, &c., should be continued at every opportunity when the land is sufficiently dry. The work done by the horses lately has been dung-carting from the yards and cattle boxes, pigstyes, &c., to heap, also the carting of hay or straw sold into town or delivery at the railway station, in which case we return home with town manure, sometimes with long fresh stable manure, at other times with dung composed chiefly of ashes and vegetable refuse. Where there is a manure heap in course of making, these town manures should be mixed in layers with the farmyard or box manure, as each improves the other by combination. Where trifolium and vetches have been cut and carted off the land for soiling cattle, horses, pigs, &c., we lay out the dung fresh and long from the boxes and sties, and plough in either for turnips or planting cabbage. When intended for sowing turnips the presser should follow the plough, as it keeps the turf under and makes the land firm for working; it is, however, a good plan to put on horse power enough to plough and press, and work the land immediately, so that drilling of the seed may be done the same day. This is the best and only safeguard against the sudden changes of our fickle climate, and whether the land hereafter proves too wet or too dry we shall have insured our seed time. To facilitate this plan of seeding the land the same day as it is ploughed and prepared, we use a light one-horse drill. We bought ours more than thirty years ago in London; it is only about 8 feet wide in the manure and seed box, and will drill on the flat two rows at the widest distance and three rows at the narrowest. This kind of drill answers well upon hilly land, being only a moderate load for one horse of ordinary power, and is specially adapted for small farms of from 100 to 200 acres.

Hand Labour.—For several weeks past the weather has been so showery that the weeds do not die off after the horse hoe or hand hoe. The only parallel season we can recollect was 1860, and upon that occasion we took the precaution in hoeing all our root crops, whether of potatoes, mangolds, or Swedes, to have the weeds and lumps of couch picked up by hand. A number of women followed the hoers with canvas aprons and picked up the weeds, and put them into heaps at regular distances in the field, there to remain and rot until the crops were removed; about three women would pick up as fast as two hand-hoers could do their work. This plan appears rather expensive, but it totally prevents further injury by weeds for the season afterwards, and therefore facilitates the growth of the crops, and in a wet summer is the only way by which the weeds can be kept under, and instead of being more expensive it is far less costly than continued hoeings. We recommend this plan with confidence where the women or strong boys can be obtained to do the work. It is well in such cases to let the hoeing by the acre, the men doing the hoeing, their wives and children picking the weeds. The dairy farmer finds plenty of grass in the meadows at present both for young stock or dairy cows, and also plenty of trifolium, vetches, &c., as supplementary food for soiling cattle and horses. In most districts the coarse grasses and weeds growing on the banks and borders of the fences will pay well for cutting for feeding cattle and pigs, especially breeding sows and store pigs, and it not only furnishes food for stock, and contributes to the decent appearance of the fences, but at the same time prevents the weeds and coarse grasses from seeding the adjoining land. The shearing of sheep is now nearly concluded in the southern and midland districts, but it is advisable to allow the sheep at night time to lie in some sheltered field or pasture, the nights having been lately very cold, sometimes with frost, and we can recollect the season when sheep have been killed by frost at night after shearing as late as the 22nd of June. The weaning of lambs for stocks should now be carried out, the best plan being to remove the ewes from the lambs instead of taking the lambs away from the ewes; and when removed they should be far enough apart in a distant field or pasture so that they may not hear each other call, otherwise it greatly disturbs weaned lambs for the first few days.

KERRY CATTLE.

At page 497 of our last volume we gave some account of the Kerry cattle, and spoke of them as being well adapted for home farms and small establishments. At the forthcoming Royal International Agricultural Show which is to be held at Kilburn we understand there will be a good representation of this valuable breed, and those who are interested in obtaining further information about them will have an opportunity of doing so.

From our own experience of them we can confidently recommend the Kerry breed of cattle to the attention of the owners of small occupations or suburban villas who desire a supply of rich wholesome milk sufficient for most purposes, and obtainable at a small cost for the keep of the animals. Whilst the Kerry breed has long been an established favourite in Ireland it has of late years been introduced into England, where it has become a great favourite with all who have tried it. Among others the Streame herd, reared by Dr. Hogg in Sussex, contains some admirable specimens of this class, some emanating from the Busaco blood. La Mancha (fig. 68, see page 488), a son of Busaco, now three years old, stands 45 inches in height at the shoulder, is 70 inches in girth, and from the top of the shoulder to the tail is 44 inches. Fair Ellen (fig. 69, see page 489), a handsome Kerry cow, stands 42 inches at the shoulder, girths 61 inches, and is 46 inches from the shoulder to the tail. After her first calf she gave twelve quarts of milk a day, and continued in full milk till within a fortnight of the birth of her second calf, when she was dried-off, otherwise she would have continued to yield to the time of calving.

As examples of the sizes of the two varieties of the Kerry breed, we give the following taken from Dr. Hogg's herd, two being what are called the true Kerrys and two Dexters:—

	Height.	Length.	Girth.
Fair Ellen (true Kerry)	42 inches.	46 inches.	61 inches.
Lady of the Lake (true Kerry)	46 "	48 "	64 "
Puncby (Dexter)	39 "	42 "	62 "
Loppy (Dexter)	40 "	46 "	61 "

The hardiness of the race and the ease with which they are kept are also great recommendations of the Kerry breed. They will thrive where a Shorthorn or an Alderney would starve. There is no pasture so rough where the Kerry will not find a living, and the quantity of food it requires is very much less than for any other breed. During the whole of the last severe winter the Streame herd were out in the open on the Weald of Sussex above Eastbourne, grazing on rough pasture with the addition of hay only, and in the spring they were in better condition than other cattle which had been wintered in the yard.

The following table giving returns obtained by Mr. Thomas Scott, shows the great superiority of the Kerry for dairy purposes over the other breeds named:—

Breed of Cows.	Milk required to produce 1 lb. of Butter.	Cream from ten quarts of Milk.	Butter from ten quarts of Milk.
	Quarts.	Quarts.	Ounces.
Kerry	8.12	1.33	19.70
Galloway	9.50	1.16	16.84
Ayrshire	10.40	1.08	15.38
Shorthorn	15.11	0.88	10.52
Cheshire	14.22	1.12	11.00
ditto	13.33	1.24	12.00
Irish cows—Twelve, average of seven trials	9.18	1.43	17.42
Irish cows—Three, average of five trials	9.80	1.66	16.32

POULTRY FOODS.

Poultry-keepers are often at their wit's end to vary the food of their stock. It must be confessed that in England there is a great sameness in our *régime* of diet. We have extracted and translated the following hints and recipes from some chapters of a French poultry book, trusting that to many of our readers they may be useful, as suggesting cheap variations from the common fare. We thoroughly endorse the author's opinion on the necessity and economy of much green food. For the first meal of newly-hatched chickens he says, "Take a handful of stale bread-crumb and rub it fine in the hands; add a hard-boiled egg finely chopped, white and yolk together; take some lettuce leaves or young sorrel, turnip, cabbage, or beet, chop this fine too and put in about the same quantity as of the egg. Mix them all up together but without compression, so that the particles remain separate and do not become doughy. The addition of the green stuff keeps it cool all day, and prevents the bread drying up. We begin by feeding chickens on this diet, and they relish it much. After the first day we give them some good white millet as well. At the end of three days we add wheat, which the little things begin to eat at once." This strikes us as a peculiarly good receipt, little differing from one which we have for years used, and which was originally given us by Mr. L. Wright. The author in another paragraph points out the many substances which fowls in confinement cannot obtain, and which must be provided for them. He says, "There is little difficulty in feeding adult poultry when they are allowed to wander about farmyards and their surroundings or the large courts attached to the stables of country houses—that is to say, places where they can find dunghills, grass, and all the scraps and pickings of the kitchen. Here in their ceaseless searches they come upon sprouting or half-consumed seeds, refuse of all kinds, innumerable insects in the dung heap, as well as plants growing between the stones of neglected walls by the roadside. In such places we say there is little difficulty about feeding; one or two kinds of grain are enough, and a little meal from time to time. The sweepings of

the barn—barley, small wheat, oats, buckwheat, and maize, separately or together—are generally the staple food. They should have porridge made of potatoes, refuse meal of all sorts, such as crushed barley and bran mixed with water or curds; add, when possible, green food (cabbages, lettuces, &c.), which is specially necessary in spring time, when hens are laying, and during the moult. Green food and vegetables, either raw or cooked, serve as correctives and digestives, and make fowls always hungry and healthy.

"It should be remembered that diet must be varied according to what items of it each place affords or does not afford; but the sum of our recommendations is—green food always as liberally given as possible, nourishing food while hens are laying, and during cold or wet a diet of grain, varied with meal and cooked or raw vegetables. All these directions for fowls at liberty are applicable to those confined, except that there should be more rather than less variety in their fare. Obviously creatures condemned never to come out of a confined space cannot long find there the various substances necessary for their subsistence and health. It is only, then, by a great variety of grain and meal and by a liberal supply of green food and cooked or raw vegetables that one can at all succeed in making up for the loss of those things which they find for themselves when at liberty. Sorrel in the porridge or given whole supplies the hens with the calcareous substances exhausted in their frame by laying long.

Fig. 68.—La Mancha (see page 487).

"Hens, whether confined or at liberty, to be in good health ought never to be either too fat or too thin. One way of giving green food to poultry shut up, so that they cannot waste it, is to hang it up in small bunches where they can just reach it. We recommend the waste beet from distilleries, brewers' grains, and raisin skins, but they should be kept from cockchafers, silkworms, offal, and other things which give the flesh and eggs an unpleasant flavour, and in highly bred and pure races cause degeneracy." Further on are some useful observations on the preparation of cooked foods.

"Potatoes should be well cooked, well pounded, and mashed up till they are hard, then mixed with barleymeal or bran into stiff porridge and served in troughs. Green food and vegetables of any kind may be added half cooked. Barley ground, or rather crushed, makes a meal in which all the properties of the grain are retained. Put sufficient water or whey into a pail for the soft food you require; a little experience soon shows how much. Put in some handfuls of meal and knead it till all is taken up by the liquid, and put in more and more and continue to knead it till not a particle remains dry. Keep on doing this till the porridge becomes thick, working it with the fists from top to bottom. When it is quite stiff make it into lumps, flatten them, and sprinkle the surface with a little dry meal. At the end of an hour or two the mixture is so hard as to be friable; it should then be given to the birds, and they delight in it. In Normandy they always mix it in the evening, for by the next day it has a slightly fermented taste, which the birds specially relish."

The last sentence somewhat surprises us, and we hardly agree with the Norman breeders. "To cook maize put three measures of water to one of grain. Set it on neither a very bright nor a dull fire. As soon as the water is absorbed the maize is done. It must be given sparingly, especially to fowls in confinement; it is too fattening a food. To fatting chickens, whose flesh it is desired to refine, it may be given as well as barleymeal and rice, and to lean or tired birds which require restoratives. Barley should be cooked over an ordinary fire with not much water; after three quarters of an hour the grains ought to give to the touch; it is then digestible.

"Rice is excellent; young and old fowls alike pick it out with avidity. To cook it put one part to two of water in a saucepan. Stir with a stick till every grain is moistened, and then put it on a tolerably quick fire. Leave it there till all the water is absorbed and it is a little burnt at the bottom; it may then be taken off, and when cool turned out on a board."—C.

VARIETIES.

A CORRESPONDENT, writing to us from Lincolnshire, describes the extreme inconvenience which is being experienced by farmers in consequence of the heavy and frequent rains. "Since the 1st June the rainfall has been nearly 5 inches, much land is in a state of puddle and quite unworkable, and the turnip crop cannot be sown, weeds grow and cannot be killed, and farming prospects generally are anything but bright."

—— IT would hardly be possible to have chosen a more opportune time than the present, when public attention has been thoroughly aroused as to the general state of agriculture, for the publication of a comprehensive work on "Dairy Farming." Such a work, written by Prof. Sheldon, and dealing exhaustively with the subject, will be issued by Messrs. Cassell, Petter, & Galpin, contemporaneously with the opening of the great International Show at Kilburn. We have seen the first number of this work, and can testify to its excellence both as to the subject matter and the superior style in which the work is produced.

—— FROM the number above referred to we take the following extract on dairy cattle:—"Few things contribute more to a dairy farmer's success than skill in selecting and breeding his dairy stock. Some men possess this skill in a high degree intuitively, others acquire it by careful observation and long-continued experience, others again never can or do attain it; but, however it may come into a man's possession, it is no mean element in his success. We may lay it down as a first principle that a farmer may just as well have a good class of stock as a poor one. The land that will maintain twenty common-bred cows will maintain twenty well-bred ones, and the annual profit from the latter will be considerably more than from the former. It is, in fact, a dead loss to keep common weedy animals in the place of good ones, and the sum of that loss is just the difference in the nett profit which the two kinds respectively give to their owners. As this difference is a serious one let us see in what it consists. It is a fact, so well ascertained as to be no longer disputed, that some cows will yield more milk than others will on a given quantity and quality of food, and it is no less true that they will yield more beef under like conditions. This superiority consists in the greater ability of the one than the other to convert the food she eats into milk or meat, or both these, for some animals possess a high order of merit in both departments. It does not matter what kind and quantity of food you give to some cows, they will neither milk nor fatten satisfactorily on it, while others will do both in a high degree. It is the same with an animal as with steam boiler—the more complete the combustion of the food or fuel it gets the more satisfactory will be the result, because there is less waste; and animals can be bred up to this just as surely as steam boilers can be constructed up to it. It is a mere question of skill in breeding on the one part, and of construction on the other."

—— THE London International Agricultural Exhibition, which commences on June 30th, will continue for the six following days. It will be the largest and most varied agricultural show ever held, as the Council had taken the opportunity to include in the Exhibition some novel features of great interest. Among them would be a comparative loan collection of ancient and modern farm implements, &c. The process of foreign dairy manufacture would be illustrated by the operation of German, Scandinavian, and French methods. The implement industry of the country would be represented by an unusually large number of exhibitors, and special novelties would be contributed by French, Belgian, and German makers. Three railway waggons have been entered to compete for the gold medal offered by the Mansion House Committee for the best waggon for conveying perishable goods. The exhibition of live stock would be on a scale of equal magnitude in both the foreign and English sections, while the Council have taken the utmost precautions to prevent any importation of disease with foreign cattle, which will be placed in a portion of the Exhibition quite separate from the English cattle department. Suitable premises have been engaged as quarantine stations, and arrange-

ments have been made for the inspection of all animals entered for exhibition previous to shipment and after landing.

——— At the half-yearly general meeting of the members of the Royal Agricultural Society recently held it was stated in the report that since the December meeting no fewer than three governors and 677 members had been elected members of the Society, while two governors and forty-seven members had died. The total number of members was 7352, showing an increase of 535 since the December meeting. The funded property of the Society now stood at £24,430 7*s.*, and the balance of the current account was £7222 17*s.* 8*d.*

FOUL BROOD.

Mr. Pettigrew in the Journal of last week says, "Though foul brood is a disease among bees common and well known its cause and nature remain undiscovered;" and after mourning over its effects concludes the first paragraph of his communication thus —"Notwithstanding all that has been written and published touching the question of foul brood, the most advanced apiarians stand on a platform of equality with the least informed and say, We have no knowledge, and all will readily admit that this disease is incurable." While differing from Mr. Pettigrew *in toto* in other statements made in the same article, I, in the interest of apiculture, address myself only to the words quoted, and respectfully but earnestly deny that we are ignorant, either of the cause and nature of foul brood on the one hand or of the means of its cure on the other.

The number of bee-keepers is on the increase, and the chances of contagion are growing through the frequency with which bees are passing as merchandise from one locality to another. If, then, this disease, which we are further told "is always aggressive and never recedes or relaxes its grip, but causes devastation and ruin wherever it goes," is also incurable, the outlook for apiculture is gloomy indeed. I do not challenge these statements upon flimsy grounds, but deny that foul brood is incurable, because I have cured it, and am willing again to put the question of its curability to the test of experiment.

The investigations of Dr. Schönfield as to the cause of this disease, supported as they are by the observations of others, are so satisfactory, and point so completely to its fungoid nature, that I had thought all those entitled to an opinion were at rest respecting it. The disease is artificially given by touching healthy bee grubs with micrococcus spores. The micrococcus grows in the bodies of the infected. The spores produced cause the destruction of ordinary gentles by a disease in all stages resembling foul brood. The microscope has revealed every step of the progress of the disease. These experiments are matters of apicultural history. Upon what ground does Mr. Pettigrew ignore them and say, "Its cause and nature remain undiscovered?"

Again, a substance which is destructive to fungi is a curative agent. The evidence that the infinitessimally small spores of micrococcus cannot germinate in the presence of salicylic acid is irrefragible. Salicylic acid is obtained from the willow (Salix), hence its name. Mr. Hilbert effected an absolute cure of this disease by dissolving fifty grains of the acid in five hundred grains of spirits of wine. Twenty-four drops of this solution were added to one ounce of water, which was applied by the spray-producer. Solution in spirit is now not necessary, since the discovery has been made that salicylic acid is highly soluble in water containing soda borax. If thirty grains of borax be dissolved in ten ounces of water (half a pint), and salicylic added until no more undergoes solution, we have a specific in the presence of which foul brood cannot continue its ravages. Uncapping the infected cells and using the spray at frequent intervals will restore stocks that have not been allowed to pass into rottenness. My experience in this matter is very encouraging, but at the same time shows that half attention will never reap success.

Mr. Pettigrew may have intended that this disease is incurable in hives which give no command of the combs; if so, the necessity for frames is the fair deduction. With skeps feeding with syrup, to which the solution previously mentioned has been added, must at least act as a palliative, and with frame hives this should always be done where foul brood is present in other stocks of the apiary at times when feeding is demanded; whereas infected stocks should be deprived of their own honey and fed continually upon medicated syrup while under treatment with the spray-producer.

This question is so vital to the interests of apiculture in this country that it demands some little sacrifice if that may in any way prove the amenability of foul brood to treatment, and no doubt the Editors will allow the following compact to be entered into. I will receive, by previous arrangement when the swarming season is over, from any bee-keeper or bee-keepers sufficiently known to give their testimony some authority, an unmistakeably infected hive, stipulating the following conditions. The hive shall still contain a fair number of bees, shall not be hopelessly rotten throughout, shall have straight and moveable combs. I prefer my own hive because of the ease with which it can be handled. The combs shall not have been transferred lest there should be any subsequent suspicion of their having been changed, and each frame shall be signed or marked so as to be subsequently recognised, and the hive shall be delivered to me not later than the middle of September. This hive after treatment to be reported of in this Journal.—F. Cheshire, *Avenue House, Acton, W.*

IMPRESSED WAX SHEETS, AND HOW TO USE THEM.

In a recent number of your valuable Journal "B. & W." gives some of his experience with comb foundation. I am not at all surprised at his partial success, for not one of the plans he gives for inserting sheets in the frames is right. If sheets are properly fixed in the frames and to the top bar only they will not bulge or sagg. I can assure "B. & W." that whatever amount of "strips of wood and projections pressing against the comb" he will use to support them, they will "bulge out in places and curl up in others" if he fills the frame with a sheet touching the wood at the ends and bottom. There is a law in nature that all substances expand with heat and contract with cold. The cold sheet of comb foundation put into a warm hive expands, therefore space must be left at the ends and bottom to give room for this expansion to the ends and bottom, so as to prevent expansion sideways by bulging and sagging.

Fig. 69.—Fair Ellen (see page 487).

It is an established fact that, next to the bar-frame hive, comb foundation is the most valuable invention in bee-keeping of modern times. All bee-keepers ought, therefore, to learn the best mode of inserting the sheets in the frames, and for their benefit I will endeavour to describe the mode I adopt, and which I have found from experience to be the right plan. Procure a board that will fit easily inside the frames, but half an inch narrower and a shade thinner than half the breadth of the top bar. On one side of this board nail another thin board an inch or so broader, and deeper than the outside size of the frame. Now lay the frame on this board, and nail a strip of wood along the ends outside the ends of the frame, and of the same breadth as the ends of the frame. Let these strips project under the top bar so as to keep the board inside the frame half an inch clear of the top bar. Put a button on each strip to lock the frame in the board to keep it rigid and in place. Cut the sheet of comb foundation so as to leave three-eighths of an inch clear of the end bars and half an inch from the bottom bar. Lay the sheet on the board in the frame, keeping the arch of the cells uppermost—that is, parallel to the top bar. Press the edge with your hand to the top bar, and with an Abbott smelter run a line of melted wax along one side of the sheet and bar. When set to the wood and foundation reverse the board in your hand, and pour a stream of melted wax along the other side. When the wax is set unfasten the buttons and lift out the frame and place in a case or box in the same position as they are hung in the hive, and which will preserve them till required for use. The sheet of foundation is thus fastened to the top bar only, and

there is three-eighths of an inch of a space at the ends and half an inch at the bottom. This clear space left at the ends and bottom is absolutely necessary, for the sheet expands this much with the heat of the hive. By leaving this space there is no bulging or sagging. When a foundation comb thus placed is dug out and finished by the bees it is as perfect as if cast in a mould, and with every cell fit to produce a bee.

A word now as to the melted wax. If it is too cold it will not adhere to the bar, if too hot it is apt to melt the sheet. A little practice will enable anyone to determine the proper temperature. The melted wax requires to be hot enough to expel the moisture of the surface of the bar, and yet not so hot as to melt the sheet. If put on at the right temperature the sheet is fixed so firm to the top bar that it will carry a large weight of bees without breaking down. Almost all the frames of comb in my apiary and also in my neighbours' apiaries for the last two years have been built on full sheets put into the frames as described, and I have not seen nor heard of a single sheet collapsing nor of a bulged or unshapely comb. I have discovered another essential, and that is that comb foundation must be properly made. It requires intelligence and practice to make foundation right. Some comb foundation will sagg and give irregular cells whatever way it is inserted, and the cause of this lies in the making. I purchase all I use from Mr. Raitt of Blairgowrie, a practical bee-keeper, and one who has studied the subject of comb foundation thoroughly.

I gave in your columns recently several modes of getting the sheets built out into comb. Another good plan so as to have combs ready for swarms is to put two or three frames of foundation sheets into a strong colony. In two or three days these sheets will be fixed and dug out by the bees. Remove them, and insert others in their place. When a swarm comes fill their hive with those half-finished sheets, and in a few days, if the weather is right and honey coming in, the swarm is ready for supering. It is not desirable to put more than half an inch of a strip of comb foundation in supers or sections. When honey is coming in rapid and the weather warm, the bees do not as a rule dig out the foundation, but lengthen their cells on the face of it. In spring and late in the season they always dig it out; therefore to get beautiful comb for supers put full sheets in strong stocks in spring and autumn till they are thinned and dug out, then remove them, and cut and insert in the sections. One can thus have all the comb ready for the bees to fill when the honey harvest comes.

Strips of wood, pieces of tape, frames of wire netting, &c., put into a hive to support the combs of foundation are quite unnecessary if a little care and forethought are used in fixing the sheets in the frames. Everything of this nature ought to be avoided, for it hinders the work of the bees. We have a duty to perform towards our bees; and while we ought to do all in our power to aid and assist them as one of the most industrious creatures in the world, we ought to avoid everything that tends to obstruct their orderly and industrious habits.—J. S., *Arbroath*.

BEE TENTS.

THE last issue of this Journal referred to the increasing popularity of the bee tent, which, although now numbering its visitors by tens of thousands, must as yet remain somewhat of a puzzle to the majority of those interested in apicultural matters. This appliance is proving itself to be one of the most valuable means in educating the bee-keepers whose notions are too primitive, and in awakening interest in those who have hitherto disregarded the claims of the industrious and wealth-accumulating bee. Some description of its arrangement cannot be useless or uninteresting.

The tent itself is circular in form, about 26 feet in diameter, while at the top of the central pole floats the flag of the British Bee-keepers' Association. Instead of the usual blunt cone for a roof the covering extends inwards about 5 feet only from the surrounding canvas, and from the inner edge of this covering drops a curtain of transparent net, admitting of ready observation of all that takes place in the roofless centre, while the passage of the little sting-bearer is prevented. To the lower edge of this net is attached a heavy valance which hugs the ground so closely as to give a sense of security to the most nervous. The visitors, it need not be said, occupy the space between the net and the tent wall. Open driving usually leads to manipulation; and while some friend of the Association gives such explanation as may be required, the onlookers are amazed at the facility with which the bees are removed, and at the immunity from stinging possessed by the operator and lecturer, and generally suggest some secret recipe for anointing the skin or turning the bees. At Peterborough on Thursday last a lady of social position lent skeps for driving which removed the latter suspicion, while to dissipate the former I poured scoupfuls of the buzzing insects on to my palm, and invited the visitors "to lend a hand" to be treated in the same fashion. Several gentlemen volunteered, and two ladies gaining courage by their example smiled away their groundless fears as they watched the fugitives retreating between their fingers; thus all learned the unwillingness of gorged and frightened bees to sting. The queen is caught, exhibited in a box, the combs are transferred to a frame hive, the extractor explained. A short lecture pointing out the advantages of improved methods follows, and then questionings and explanations often intermingled by the testimony of visitors who have proved much that has been advanced. This tent has added greatly to the interest of many floricultural exhibitions; its presence at Kilburn next week will no doubt do good work in pushing forward the philanthropic objects of the Association whose property it is.—F. CHESHIRE, *Avenue House, Acton, Middlesex*.

OUR LETTER BOX.

HENS EGG-BOUND (*J. A. B.*).—Give each of the hens a dessert-spoonful of castor oil, and repeat the dose if they continue to have difficulty in laying. They should have mashed barleymeal once every day instead of wheat.

SHELL-LESS EGGS (*W. P. B.*).—We are somewhat in difficulty to answer your queries. Fowls in confinement often lay shell-less eggs because they cannot find the material of which the shell is composed, but with such a run as you describe everything that is required is at hand. The non-sitting fowls are all subject to curious cravings and disorders. For instance, the Spanish have always a desire as soon as we get into the month of May to eat each other's feathers, and they will do it in confinement till they are naked. There is no doubt your birds are out of health. It may be they are suffering like many others from the cold and wet weather. We advise you to confine them if you can in a dry place, to supply them with lettuce, to feed them on ground oats, and to supply them with bricklayers' rubbish. Give them castor oil or Bally's pills, as it is evident their secretions are vitiated. A broken egg is a fatal case, but not when it has no shell. These fowls die from the disease that prevents the formation.

HENS NOT LAYING (*Anxious Inquirer*).—We believe your hens lay and eat their eggs. They are very cunning in doing it, but we believe if you will catch them when they come off the nest you will find portions of yolk adhering to the sides of the beak. Or you may watch them narrowly when on the nest, and as soon as they show a disposition to look back or under into the nest frighten them off, and we believe you will find the egg in the nest.

WHITE SPARROW (*W. P. B.*).—White varieties, scientifically known as albinos, occur in many species of birds. We have seen a white Crow.

BEES EJECTING BROOD (*A Novice*).—1, It is not an uncommon thing for bees in continued bad weather to cast out brood such as you describe. Drone brood is usually first got rid of. It is a sign of pauperism; and we fear that your experience will be found to be no uncommon one this year. In our whole apiary we doubt if any hive, even the most prosperous, has a single pound of honey sealed up, and this on the 24th of June. 2, Foul brood is highly contagious. It is detected, experts say, by a peculiarly offensive smell. In our own apiary we have had, happily, no experience of it. 3, It is most unadvisable to transfer swarms "about three weeks after swarming." We advise you to wait till the middle of August, then transfer and feed up to the required weight.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1879. June.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 18	29.754	58.4	54.6	N.W.	57.4	69.6	51.8	114.4	48.2	—
Th. 19	29.922	61.5	56.1	S.W.	57.5	68.6	48.6	107.6	42.7	0.146
Fri. 20	29.765	62.7	56.7	N.W.	57.7	71.2	56.6	125.5	54.3	0.165
Sat. 21	29.814	56.2	55.3	S.	58.0	64.3	53.1	80.6	49.7	0.150
Sun 22	29.793	59.7	54.0	S.W.	57.0	68.8	52.7	104.0	49.0	—
Mo. 23	29.912	59.0	53.5	S.S.W.	56.0	65.3	46.6	99.4	39.4	0.070
Tu. 24	29.614	60.2	54.4	S.W.	56.0	66.3	52.2	121.6	48.3	1.072
Means	29.796	59.7	54.9		57.1	67.0	51.7	107.6	47.4	1.603

REMARKS.

18th.—Very dull all the morning; fine with bright sunshine in afternoon; clear fine evening. [night.

19th.—Fine in the first part of the morning, afterwards dull and cloudy; wet

20th.—Wet in early morning; fine and bright afterwards till 2 P.M.; afternoon cloudy and dull, with a heavy shower at 4 P.M., fine afterwards.

21st.—Rain from 6.30 A.M. to 11 A.M.; afternoon fair, with a glimpse of sun; slight drizzle in evening. [evening.

22nd.—Fine on the whole, though at times overcast and cloudy; beautiful

23rd.—Occasional sunshine, but mostly dull and cloudy; slight drizzle after 9 P.M., rain at night.

24th.—Heavy showers all day, with intervals of bright sunshine in morning; thunderstorm at 1 P.M.; thunder and slight hail at 2.30 P.M., and thunder at intervals during the afternoon, tremendous storm of rain and hail at 5.30 P.M., with a little thunder and lightning.

The means of the barometric readings and all the thermometric values were below those of last week. The days, though dull and cold for the time of year, were not so wet as the amount of rain would indicate, as most of it fell during the night.—G. J. SYMONS.

COVENT GARDEN MARKET.—JUNE 25.

FRUIT.

		s.	d.		s.	d.			s.	d.		s.	d.
Apples	½ sieve	5	0	to	6	0	Lemons	℔ 100	4	0	to	8	0
Apricots	box	2	0		3	6	Melons	each	10	0		15	0
Cherries	box	2	0		3	6	Nectarines	dozen	12	0		24	0
Figs	dozen	12	0		18	0	Oranges	℔ 100	4	0		12	0
Filberts	℔ lb.	0	9		1	0	Peaches	dozen	18	0		36	0
Cobs	℔ lb.	0	9		1	0	Pine Apples	℔ lb.	3	0		5	0
Gooseberries	quart	0	6		1	0	Strawberries	℔ lb.	4	0		10	0
Grapes, hothouse	℔ lb	3	0		8	0	Walnuts	bushel	0	0		0	0

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